

**The Higher Education Systems of the People's Republic of  
China and the Republic of China: A Comparative Study**

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**Thesis Submitted to the University of London**

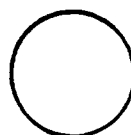
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## **ABSTRACT**

### **The Higher Education Systems of the People's Republic of China and the Republic of China: A Comparative Study**

This study explores the tension between the preservation of cultural and political identity and economic modernization in the higher education systems in the People's Republic of China (PRC) and the Republic of China (ROC) between 1949 and 1993.

Chapter One introduces the research problem, theoretical orientation, main argument, and organization of this thesis.

Chapter Two examines the historical context of the higher education systems of the PRC and the ROC, and identifies the similarities between the pre-1949 higher education system and the two contemporary Chinese higher education systems.

Chapter Three analyzes the contemporary (domestic and international) contexts of higher education in the PRC and the ROC. The chapter highlights the monolithic, state-supported, official value systems of both countries; the domestic relations between the ruling party, the state, the economy and the people; and the international relations of the two countries, as these affect the higher education systems.

Chapter Four investigates the cultural tasks of both higher education systems, and reviews the ways in which they have institutionalized different forms of cultural and political identity.

Chapters Five and Six analyze the economic tasks of both higher education systems. Chapter Five examines the importation of science and technology, and the social values of science and technology in both countries. Chapter Six examines the processes of institutionalizing, in higher education, different foreign models of science and technology.

Chapter Seven reviews the patterns of similarities and differences between both higher education systems, and explores the specific and the broader implications of the thesis.

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## **CHAPTER ONE**

### **INTRODUCTION: BACKGROUND OF THE RESEARCH PROBLEM AND OVERVIEW OF THE ARGUMENT**

#### **1.1 PURPOSE**

This chapter offers an overview of the thesis. This chapter will highlight, firstly, the background of the research problem; secondly the theoretical orientation of the thesis; and thirdly the main argument and its development in the thesis.

#### **1.2 THE RESEARCH PROBLEM AND COMPARATIVE FRAMING OF THE THESIS**

This section states the research problem, and the comparative framing of the thesis.

The higher education systems of the People's Republic of China (PRC) and the Republic of China (ROC) inherited a common cultural history which was rooted in Confucianism. However, these two higher education systems have been caught in a tension since 1949: the rejection of foreign values when these are seen to be a challenge to the existing political leadership; and the acceptance of economic links with foreign countries for practical purposes.

This tension is present in the history of pre-1949 Chinese higher education. China for more than two thousand years perceived herself as a nation with a self-sustaining economy and an advanced civilization. Between the 1840s and 1940s, the Chinese political leadership faced challenges from

Western cultures, and at the same time needed to import technology from Western countries. In this period, the imperial Chinese government endeavoured to strike balances between the maintenance of cultural identity, economic improvement, and Western influences. The struggle can be summed up in the Chinese saying of the late 19th century: "Chinese learning for morality and Western learning for utility" (zhōng tǐ xī yòng).

This tension between the selective refusal of foreign values and the need to establish economic relations with foreign countries did not disappear in the higher education systems of the PRC and ROC after 1949. Despite the change in the contents of national beliefs, this tension still exists in, and arises from the specific circumstances of, the PRC and ROC. These specific circumstances are the domestic and international contexts in which both higher education systems are institutionalized.

The PRC and ROC are comparable in a variety of ways. For example, they might be compared as "opposites" – as socialist and capitalist (on an assumption that they have very different educational systems). Alternatively, a comparison might be set up around their degree of divergence from a common history (and a common education system).

This thesis seeks to investigate the similarities and differences in their higher education systems. Again, this might be done in a variety of ways, some very descriptive and straightforward. For example, such a project might be undertaken by asking how the two systems are financed, staffed and evaluated. By careful fieldwork, among other techniques, our knowledge of the two higher education systems might be advanced.

However, this thesis is framed in a slightly more complex way. The thesis begins in a specification of some aspects of the socio-political and socio-economic context of the higher education systems and against this background attempts to make sense of the similarities and differences of the higher education systems; and to interpret the implications of this comparative analysis for some existing theories (of educational convergence, modernization and dependency).

Four aspects of the external context of higher education systems are identified, on the expectation that these aspects of social context are likely to be sources of contradictions, conflicts and dialectical relations. These sources are, in both countries, the different emphases in past and present central value systems; the preservation of the socio-political status quo; participation in the world economy; and relations with each other and with other countries in the international community.

The PRC and ROC have common historical roots in Confucianism, but currently have different monolithic, state-supported, official central value systems. The PRC upholds Chinese socialism, and resists capitalism as this was represented by the United States; whereas the ROC advocates the teachings of Sūn Yǐxiān, and at the same time accepts capitalism and opposes communism as this was represented by the former Union of Soviet Socialist Republics and the PRC. As a consequence, the diplomatic relations of the PRC or ROC became dichotomized particularly in the 1950s and 1960s, and no economic or academic links were developed by the PRC and ROC with their diplomatic enemies.

Secondly, both the PRC and ROC have struggled for a balance (between the preservation of cultural and political identity, economic modernization and the impact of foreign influences) during their gradual incorporation into the capitalist world economy. Currently, both Chinese countries maintain economic links with those countries which practise or practised opposing value systems. Since 1949, the ROC has developed a state-capitalist economy in which market regulation and state intervention coexist. In the 1980s, the ROC began to establish economic links with the former communist bloc including the PRC and USSR.<sup>1</sup> The PRC also normalized its relations with the US and Western countries and began the open door policy in the late 1970s. In 1989, the US was the third largest trading partner of the PRC; the value of imports and exports between the PRC and US was US\$ 1.23 billion (11%) out of PRC's total US\$ 11.17 billion.<sup>2</sup> Therefore, the line of demarcation between national friends and foes of the PRC and ROC in the 1980s was not as marked as it had been earlier.

The economic participation of these two Chinese countries in the world market challenged the simplicity of their earlier political and economic positions. In the ROC, martial law against communist activities in Taiwan was lifted in 1987, and the "Period of Mobilization and Suppression of Communist Rebellion" was also terminated in May 1991.<sup>3</sup> In the PRC, market forces, which had been banned for nearly three decades, re-emerged after the early 1980s. In the 14th Congress of the Chinese Communist Party in October 1992, the party leaders resolved to change the planned economy into a "socialist market economy" in which market mechanisms were permitted to coexist with

public ownership within the socialist framework.<sup>4</sup> The private sector, once forbidden, is now recognized as a significant component of the socialist economy.<sup>5</sup> Thus the classical revolutionary simplicities of the PRC and ROC, which had been a significant part of their national identity, were strongly affected by political and economic developments from the 1980s, and created opportunities for the emergence of political challenges to the respective Chinese leaders in the late 1980s.

Thirdly, the PRC and ROC have attempted to preserve the socio-political status quo and their official value systems as far as possible in the late 1980s. There were widespread student movements for domestic political reform in both countries at the end of the 1980s. In June 1989, a student demonstration took place and was militarily suppressed in the Tiananmen Square in Beijing. This demonstration was not the first, but the fifth, in the PRC since the opening up of its economy to the West in 1978.<sup>6</sup> In the ROC, Taiwanese students and teachers, modelling themselves upon the Tiananmen Square student demonstration, publicly requested domestic political reform in Chung Cheng Square in Taipei in March 1990. This student demonstration was the first since the lifting of martial law in Taiwan in 1987 (and since 1949). The Taipei authorities delayed their formal dialogue with the student leaders until the end of the presidential election on 22 March, 1990. As a result, the current president of the ROC was finally elected by the National Assembly, not by the people. In contrast to the result of Tiananmen Incident, the protesters in Taiwan were finally dealt with peacefully.

The fourth aspect of external context of the higher education systems

of the PRC and ROC is their political relations in international arenas.<sup>7</sup> Before 1971, the Taipei authorities were taken to be the legitimate government of China in the United Nations. After 1971, the Běijīng authorities replaced the Taipei government and represented "China" in the United Nations. Since then, most of the ROC's former allies including the US, Japan and South Korea have established diplomatic relations with the PRC. Other international agencies like UNESCO and the World Bank have also developed relations with the PRC, instead of the ROC. The current attempts of the ROC to rejoin GATT and the United Nations as a member are severely opposed by the PRC.

Thus, these four aspects of external context of higher education systems are related to the domestic forces, economic, socio-political and cultural, and international economic and political factors affecting the development of the PRC and ROC. These factors may contradict or be in tension with each other. Further complexities arise from the interplay of these forces during the struggles by these two Chinese governments to balance their external relations with other countries, their maintenance of cultural and political identity at home, and through the different ways in which they defined modernization.

Against these aspects of external context, this thesis will examine these struggles and will seek to identify patterns in the development of the higher education systems in the PRC and ROC in the last forty-four years.

### 1.3 THEORETICAL ORIENTATION OF THE THESIS

Since the struggles between cultural transmission and economic modernization in the higher education systems of the PRC and ROC are complex, it is useful

to establish a theoretical orientation for the analysis.

Among the initial assumptions of the writer of this thesis was the idea that existing theories which addressed issues of economic modernization and cultural tradition and the role of higher education systems would be powerful theoretical guides for a two-country comparative study. In particular, it was assumed that modernization theory or dependency theory would permit a clear specification of a problematique and would permit some subsequent location and explanation of the differences and similarities in the higher education systems of the two countries. It will be suggested, at length later, that this initial assumption was false.

It was then assumed that educational convergence theory would not only permit some explanation of the balance between economic modernization and cultural transmission, but also that it would be likely to predict the patterns of higher education systems that might be found. The evidence in this thesis, it will be argued later at length, indicates that this initial assumption was also false.

The critiques of these three theories will be an integral part of the Conclusion of this thesis.

However, an approximation of the theoretical approach as required – one stressing dialectic and contradiction; and one stressing similarities in education systems – was identified in a theory of world system relations and in mid-range theorizing about educational isomorphisms. Neither of these theories proved, finally, to be completely adequate. Again a critique of both will be offered in the Conclusion.



But all five theories provide a point of entry into the comparative problematique of the thesis, and all five theories are rehearsed in the first chapter. All five theories present some specification of the relations between economic modernization, international politics, cultural identity and educational pattern – though in different balances and with rather different emphases as will be seen in the next section.

### **1.3.1 Educational Convergence Thesis**

The educational convergence literature argued that higher education systems converge; that is, they will move toward the training of technical cadres as countries industrialize regardless of the political orientations, ideologies, and historical origins of societies. For example, Burton Clark argued that an increasing "commitment of education to technical and professional preparation" is a characteristic of industrialized society.<sup>8</sup> The main function of higher education is to produce highly trained manpower to create economic growth in industrial societies.<sup>9</sup> This kind of manpower, as suggested by Ungku A. Aziz, comprises scientists and technologists to sustain the progress of research and development; and administrators, managers and social scientists for the organization and supervision of resources (human and material) in the production of goods and services.<sup>10</sup> Jean Floud and A. H. Halsey even argued that the investment in education for the exploitation of modern technology is a "dominant pattern" in the development of education in industrialized societies, irrespective of their different socio-political structures and national histories.<sup>11</sup> This pattern was believed to be common

to capitalist countries and socialist countries (i.e. the USSR): they were industrialized.<sup>12</sup>

Theorists of educational convergence suggested that the shape of higher education in industrialized countries is marked by three standardized relations between higher education, economic modernization and society.

First, the general shape of higher education in industrialized countries, as suggested by Ladislav Cerych and Dorotea E. Furth and Burton Clark, has been shifted by industrialization from an elitist to a mass orientation.<sup>13</sup> This change helps produce more trained personnel for meeting the needs of labour markets in industrialized economies, and enhances social mobility.

Second, in order to sustain economic growth, industrialized countries, as observed by Floud, Halsey and Clark Kerr, institutionalized innovation and research in their higher education systems. As a result, a new social class, knowledge elites who are academicians or technocrats with higher degrees, is formed.<sup>14</sup>

Third, the tasks of moral education and cultural transmission are subordinate to the production of technical cadres in higher education in industrialized countries. Burton Clark echoed Max Weber's view,<sup>15</sup> and suggested that "the ideal of [the] expert" has taken precedence over "the ideal of the cultivated man" in industrialized societies.<sup>16</sup> As a result, the role of higher education in cultural transmission is diminished.<sup>17</sup>

The pattern of the relations of higher education, economic modernization and society in industrialized countries, it was proposed by Seth Spaulding and Joseph Herman, would be replicated in developing countries

because the same kind of forces operated in both types of countries.<sup>18</sup> These forces in industrialized countries, as suggested by Peter Wright, are: a skill-oriented labour market; the development of mass higher education; the demand for accountability of higher education to the government and the public; new ideas about higher education such as competence, capacity or enterprises; and forces of internationalism.<sup>19</sup> The training-oriented model, as suggested by Spaulding and Herman, was transplanted through colonialism or neo-colonialism, for example, into Southeast Asian countries; or through voluntary borrowing in Japan.<sup>20</sup>

Thus, higher education in both developed countries and developing industrializing countries, as implied in the educational convergence thesis, is mainly an agent of economic modernization for the production of technical cadres to improve and sustain economic growth.

This thesis will return in the concluding chapter to give an account of the deficiencies of the educational convergence thesis. The next section will outline the theories of modernization and dependency.

### **1.3.2 Theories of Modernization and Dependency**

This thesis will later argue that, like educational convergence theorists, scholars of modernization and dependency, despite their provision of a framework in which higher education in developing countries is set in both international and domestic contexts, are deterministic in predicting the outcomes of domestic developments under international influences.

Modernization theorists depicted a linear path of modernization for all

societies. They assume that the world is dichotomized into traditional and modern sectors, represented respectively by Third World and Western countries. Third World countries can be modernized by following the trajectories set by Western countries; for example the path of social transition, as identified by Talcott Parsons and Marion J. Levy, from 'traditional' to 'industrial' societies;<sup>21</sup> and the stages of economic growth as classified by W. W. Rostow.<sup>22</sup>

Modernization theorists also suggested, following the Western pattern, that to modernize a country means the dissolution of its domestic traditional values and their replacement with Western ones embedded in domestic socio-economic structures created by Western countries. Modernization theorists perceive traditional attitudes, values and institutions as obstacles to the societal and institutional change during the process of modernization;<sup>23</sup> and perceive the state as an agent to remove these obstacles.<sup>24</sup>

In a different way, dependency theorists predicted a linear and deterministic picture of economic development in Third World countries, and undervalued their cultures.

Dependency theorists dichotomized the world into two sectors: core and periphery. They argued that core and peripheral countries are engaged in the unequal exchange of capital, and predicted that the economic dependency on core areas by peripheral countries means their underdevelopment.<sup>25</sup> The agent of exploitation, as suggested by Andre Gunder Frank, is the "lumpenbourgeoisie" who are local leaders or elites of periphery countries, but who also hold values, attitudes and interests consistent with those of core

countries.<sup>26</sup> Change in socio-political structures is created by these local leaders or elites to defend the economic interests of core countries.

Some scholars perceived education as part of those socio-economic structures in peripheral countries (e.g. India<sup>27</sup> and Vietnam<sup>28</sup>) which are used by core countries to strengthen further their economic control over peripheral countries. Higher education institutions particularly of peripheral areas, as suggested by Robert F. Arnove, are points of mutual contact with core countries, and also points of penetration.<sup>29</sup> In other words, higher education in developing countries, as implied in theories of modernization and dependency, becomes one of the agents of cultural and economic imperialism by developed countries.

However, these three classical theories (educational convergence, modernization, and dependency), as will be seen, do not fit the descriptive data in the comparative study of the higher education systems of the PRC and ROC. The thesis will return to examine the deficiencies of these three theories in the concluding chapter.

Needed for the analysis of countries like the PRC and ROC are theories, such as Immanuel Wallerstein's theory of world systems and Robert Cowen's idea of educational isomorphisms, which address cultural diversity among higher education systems of different social and cultural origins; which secondly help us to understand higher education systems as institutional and knowledge enterprises affected by both domestic and international influences; and which thirdly permit analyses of the role of the state as an actor in shaping higher education.

These two theories described in sequence in the next two sections frame the theoretical orientation of this thesis.

### **1.3.3 Immanuel Wallerstein's Concept of the World System**

Wallerstein asserts that the world system consists of the capitalist world economy and the interstate system. The single capitalist world economy comprises three tiers: core, semiperiphery, and periphery.<sup>30</sup> All countries, including socialist,<sup>31</sup> are engaged in the capitalist relation of unequal exchange<sup>32</sup> in the endless pursuit of accumulation of capital and labour.<sup>33</sup> The "political superstructure of the capitalist world-economy," as further suggested by Wallerstein and Peter D. Phillips, is the interstate system, which reproduces the hierarchical economic relations between core and peripheral countries.<sup>34</sup>

Countries in the international community, Wallerstein argues, compete with each other in two areas: economic and cultural. But the results of competition vary with the performances of the states.

In contrast to dependency theorists who predicted the underdevelopment of Third World countries, Wallerstein argues that the reliance on core countries by non-core ones does not necessarily lead to their economic underdevelopment. In the interstate system, member states possess different capacities to intervene in the operation of the world market, and at the same time are subject to various degrees of constraint arising from the mutual relationships of states.<sup>35</sup> The economic development of countries is related to the performance of their states, whether core countries<sup>36</sup> or non-

core ones.<sup>37</sup> Wallerstein sees the relative economic status of countries (as peripheral, semiperipheral or core) in the world economy as dynamic, and change of status is not unidirectional. Countries, by adjusting their economic strategies to regulate the inflow and outflow of capital, can alter their status, for instance, from peripheral to semiperiphery,<sup>38</sup> semiperiphery to core, or vice versa.<sup>39</sup>

Moreover, Wallerstein suggests that the flow of economic goods between states is affected by changes in international political relations, like the PRC-USSR split in 1960 and the American-Soviet detente in the 1980s.<sup>40</sup>

Unlike modernization theorists, Wallerstein suggests that Western economic domination in non-core countries does not necessarily lead to cultural domination. Despite his former equation of "modernization" to "Westernization,"<sup>41</sup> Wallerstein suggests that the world system is a "complex of cultures."<sup>42</sup> In the world system of "cultural multiplicity,"<sup>43</sup> countries encounter two cultural dialectics: simultaneous creation of "a homogenous world and distinctive national cultures within this world"; and of "homogenous national cultures and distinctive ethnic groups" within the countries.

Within the world of cultural diversities at the international, national and sub-national levels, the states, as suggested by Wallerstein, play contradictory roles at dual levels: to maintain "cultural diversity" at the international level, and to sustain "cultural uniformity" at the national level. In particular, the states control a great deal of physical force to resist the formation of global "cultural homogeneity," and to promote "cultural uniformity" within their

territories.<sup>44</sup> The masses or local leaders of the second or third generation in non-core countries can plan and organize powerful politico-cultural resistance against ideological diffusion from Western countries.<sup>45</sup>

Despite the possible usefulness of the Wallerstein's concepts of world system in understanding the dialectical economic, political and cultural relations between states, Wallerstein is expected to be imprecise<sup>46</sup> in two areas: tensions between cultural transmission and the economic tasks of higher education; and the politico-cultural resistance against foreign cultures in the higher education systems of the PRC and ROC. This thesis will deal with the first limitation of Wallerstein in the next section, and the second later in the thesis.

#### **1.3.4 Robert Cowen's Concept of Educational Isomorphisms**

This section will focus particularly on Robert Cowen's concept of educational isomorphism – educational similarities, "static patterns of educational phenomena," analyzed on a worldwide basis.<sup>47</sup> The discussion serves as a link between Wallerstein's concept of world system (which is utilized as the general theoretical orientation of this thesis) and the complex relations of the economic and cultural tasks of higher education in countries like the PRC and ROC in the world system.

Many countries in the world system, as suggested by Cowen, exhibit educational isomorphisms which arise from four forces that may conflict: the search for cultural identity and authenticity; the establishment of international educational relations between nation states; economic improvement; and the



search for equalization of educational opportunity.<sup>48</sup> Under different historical, social and economic forces, these four aspirations in various countries lead to different patterns of conflicts, and different educational decisions.<sup>49</sup>

For example, Cowen suggests that in the educational systems of new revolutionary countries (like Algeria or Angola), cultural transmission is in tension with economic improvement.<sup>50</sup> Some of these new revolutionary countries framed the content and the selection of their educational principles with a new transnational revolutionary principle, Marxism-Leninism.<sup>51</sup> These revolutionary states redefined their educational principles and aims in a dialectical way: to reject that part of the national history which contradicts the current "revolutionary ideology," and to re-assert the "authentic elements in the culture of the people" to build a new future; and, on the other hand, to address the problems of modernization. Therefore, free and compulsory education is used as a means to meet economic needs, while at the same time it is employed to strengthen the "processes of cultural transmission of the revolutionary ideology."<sup>52</sup> Schools do both economic and cultural tasks, often with great difficulty.

However, the tension between the search of cultural identity and economic development in many countries is complicated by their international educational relations. To develop such relations can be perceived by many governments as a solution to economic development, but may pose new problems of cultural identity.<sup>53</sup> Clashes of cultural messages, as suggested by Cowen, occur in the schools of these countries which are engaged in

borrowing or lending educational systems.<sup>54</sup>

Despite the usefulness of the idea of educational isomorphisms in understanding the dialectical relations between the preservation of cultural identity and economic modernization in education, and between equality and selection, Cowen, like Wallerstein, is not precise about the processes of placing checks on international economic and educational relations. He is also expected to be imprecise about the effects of these dialectical relations on the higher education systems of the PRC and ROC.

Thus the task of this thesis is two-fold. First, the thesis, as mentioned earlier in this chapter, will look for patterns in the development of the higher education systems in the PRC and ROC. Second, the thesis will offer (in the concluding chapter) critiques of the theories of educational convergence, modernization, and dependency, and will refine Wallerstein's concept of the world system and Cowen's idea of educational isomorphisms.

Overall, then, on one dimension, this thesis is an extended essay in choosing among, and in rejecting or refining these theories. The final chapter makes these choices clear.

On another dimension, sustained throughout the thesis, this is an extended essay in establishing in a theoretically significant way just what the patterns of higher education in the PRC and ROC have been, are, and are becoming.

#### **1.4 THE MAIN ARGUMENT AND ORGANIZATION OF THE THESIS**

This thesis will develop these themes against a main argument: despite the conventional and frequently stressed differences between the social and central value systems of the PRC and ROC since 1949, both higher education systems<sup>55</sup> have been affected in their curricular and institutional structures by the establishment of different external links with foreign countries and the rejection of those foreign values which were deemed challenging to the central value system<sup>56</sup> by the respective Chinese political leaders.

The first part of the main argument will be tested in Chapter Two, which suggests that pre-1949 Chinese higher education faced the tension (between the development of external economic relations with other countries and the selective rejection of foreign values) that later affected the higher education systems of the PRC and ROC.

The 1911 revolutionaries ended the emperor political system of imperial China, but did not institutionalize opposition in the new republican system, and therefore did not manage to transform the traditional socio-political culture of China into one marked by political pluralism.

Both contemporary Chinese higher education systems inherited this problem. The discussion of pre-1949 Chinese higher education provides a striking pattern of similarities to the two contemporary Chinese education systems in university curriculum and in the establishment of institutions, and is therefore a basic reference point to which this thesis will frequently refer.

The second part of the main argument is tested in Chapter 3: the tension between the establishment of external links with foreign countries and the

selective rejection of those foreign values (which were deemed challenging to the central value system by the respective Chinese political leaders) in the higher education systems of the PRC and ROC has been framed domestically by their national economic and socio-political problems; and, at the same time, internationally by their political and economic relations with other countries.

This chapter will concentrate on the social construction of the central value systems of these two Chinese countries, the mechanisms to keep the official values alive, and the apparent and actual contradictions which emerged at domestic and international levels.

Against this understanding of both historical and contemporary contexts of the higher education systems of the PRC and ROC, Chapter 4 argues that the higher education systems of the PRC and ROC, despite their redefinition through revolutionary domestic and international relations and their contradictions at both domestic and international levels, were both more "closed" than their economies; i.e. both Chinese higher education systems have transmitted the revolutionary ideals and values of the first-generation leaders over the last forty-four years.

The fourth and fifth parts of the main argument concerning the economic tasks of both Chinese higher education systems are developed respectively in Chapters 5 and 6.

Chapter 5 argues that despite differential strategies in the utilization of science and technology and in their importation from abroad for economic purposes, the PRC and ROC injected imported science of technology with domestic socio-political values.

The argument in Chapter 6 is that the higher education systems of the PRC and ROC were marked by curricular and infrastructural adjustments for the accommodation of foreign science and technology for economic purposes. However, the PRC and ROC differed in their strategies. Education for science and technology in higher education of the PRC preceded its modernization, but in the ROC it followed modernization. Science and technology education was used in the PRC to create national modernization. In contrast, science and technology education in the ROC was adjusted to meet the demands of its industrializing economy.

Finally, Chapter 7 as the conclusion of this thesis suggests that the higher education systems of the PRC and ROC exhibited patterns. These patterns are identified. It is also suggested that these patterns contradict the assumptions or predictions of the theories of educational convergence, modernization, and dependency; and are not adequately explained by theories of the world system, and educational isomorphisms. Moreover, some conclusions of the thesis are refined by the results of the interviews conducted in the PRC and ROC at the closing stage of this research (see Appendixes 1.1 and 1.2).

### Endnotes for Chapter One

1. Up to July 1992, the indirect trade between these two countries through Hong Kong amounted to US\$ 20 billions. Moreover, 2,552 Taiwanese companies, which held mainland assets worth US\$ 820 million, had been established in the PRC. See *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 20 July, 1992; and Philip Liu, "No Turning Back," *Free China Review*, Vol.44, No.7 (July 1992), pp.54-56.
2. In 1989, the first and second trading partners of the PRC in 1989 were correspondingly Hong Kong and Japan. The trading amounts of the PRC with these two countries were: Hong Kong, US\$ 3.45 billion (30.8%) out of the PRC's total US\$ 11.17 billion; and Japan, US\$ 1.89 billion (16.9%). See Muqiao Xue, and Hóng Mǎ (eds.), *Zhōngguó Jīngjì Niánjiàn*, 1990 (Almanac of China's Economy, 1990) (Beijing: Economics Management Press, 1990), Section VII, p.102.
3. The period of national mobilization and the suppression of communist rebellion was announced to begin in April 1948 by the Nationalist Party in mainland China. After the Party moved to Taiwan, this stance continued until President Lǐ Dēnghuī pronounced its termination in May 1991. Until that date, communist activities and propagation were banned throughout Taiwan. The change of socio-political structure is depicted in the "Temporary Provisions Effective During the Period of Communist Rebellion" which were adopted by the Nationalist government on April 18, 1948, and were last revised on March 17, 1972. The "Provisions" are placed side by side with the constitution of the ROC. See *Zhōnghuá mínguó Xiànfǔ* (Constitution of the Republic of China) (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1989), pp.67-72; and for the English edition, *Constitution of the Republic of China* (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1988), pp.55-57.
4. The new term, "socialist market economy," sounds paradoxical: the mode of private ownership is part of a system of public ownership; and the introduction of the practice of private ownership in the PRC is expected to revitalize the existing public ownership system in which the mode of private ownership is constrained. See *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 13 and 14 October, 1992.
5. The economic development of the PRC has forced the CCP to yield part of its control over the means of production to the private sector, and officially to recognize the already existing private sector. In 1989, there were 90,581 registered private enterprises which had a labour force of 1.6 million people. According to the official re-classification of the types of economy by the Běijīng authorities in December 1992, citizens can

possess the means of production which previously and exclusively belonged to the state and collectivity. People are also allowed to employ or be employed as labour on a contract basis in private enterprises. For the statistics, see Muqiao Xue, and Hóng Mǎ (eds.), *Zhōngguó Jīngjì Niánjiàn*, 1990 (Almanac of China's Economy, 1990) (Beijing: Economics Management Press, 1990), Section III, p.261. For the re-classification of the economy, see *Rénmín Rìbào* (People's Daily), 20 December, 1992.

6. The other four student demonstrations took place in 1979, 1980, 1985, and 1986. As compared with the 1989 student movement, they were smaller in scale. Common to these five student demonstrations were the students' doubts about the validity of socialism in the PRC; their requests for political reforms; their concerns for the bad effects (like inflation) of economic reforms on daily life; and political suppression by the leaders of the PRC. For discussion on the relations between these student movements and the economy of the PRC, see Guóān Xiào, "Cóng Shíyīnián Lái Xuécháo De Guǐlì Kàn Yòufā Xuécháo De Yīnsù" (To Trace the Causes of Student Movements in the Last Eleven Years), *Zhōngguó Qīngyùn* (Chinese Youth Movement), August 1990, pp.9-14.
7. Despite the increasing contacts between the PRC and ROC at the non-governmental level and their opposing claims to unite China, this thesis does not assume that the unification of the PRC and ROC will materialize; or that it will not.
8. Burton R. Clark, *Educating the Expert Society* (San Francisco, California: Chandler, 1962), p.3.
9. Peter Scott, *Strategies for Post-secondary Education* (London: Croom Helm, 1975), p.133.
10. Ungku A. Aziz, "Orientation of Arts and Science Education to Meet National and Regional Needs," in Yip Yat Hoong (ed.), *Role of Universities in National Development Planning in Southeast Asia: Proceedings of the Workshop held in Singapore, 26-29 July, 1971* (Singapore: Regional Institute of Higher Education and Development, 1971), p.82.
11. Jean Floud and A. H. Halsey, "Introduction," in A. H. Halsey, Jean Floud, and C. Arnold Anderson (eds.), *Education, Economy, and Society: A Reader in the Sociology of Education* (New York: Free Press, 1961), pp.1-2.
12. A. Inkeles and R. A. Bauer have suggested that in the 1950s the higher education system of the USSR emphasized technological education as its foreign counterparts including the US did. The Soviet educational response to technological innovation was, according to Floud and Halsey, ahead of major Western countries including the US. See A. Inkeles and R. A. Bauer, *The Soviet Citizen* (London: Harvard University

Press, 1959), pp.377-398; and Jean Floud and A. H. Halsey, "Introduction," in A. H. Halsey, Jean Floud, and C. Arnold Anderson (eds.), *Education, Economy, and Society: A Reader in the Sociology of Education* (New York: Free Press, 1961), p.9.

13. According to Cerych and Furth, mass higher education is marked by 4 major characteristics: the provision of mass secondary education as a basis for the expansion of higher education; a change in university curriculum from one comprising only a "small number of well-established and academically recognized disciplines" to one which offers a "wide and perpetually changing range of fields of study"; a central role of higher education in society; and a mass institutional structure. Clark also argued that higher education institutions in industrialized societies act as agencies to select and train people according to economic needs, and to allocate this trained manpower into different socio-economic strata of the industrial society. The criterion of selection is based on merit and capacity, instead of family background. In so doing, higher education becomes a vehicle of social mobility. Later discussion on the transition of elitist higher education to mass higher education in Western countries and the problems encountered during the transition can be found in literature by, for example, Martin Trow and Ulrich Teichler. See Ladislav Cerych, and Dorotea E. Furth, "On the Threshold of Mass Higher Education," in W. Roy Niblett, and R. Freeman Butts (eds.), *Universities Facing the Future* (London: Evans Brothers Limited, 1972), pp.14-28; Burton R. Clark, *Educating the Expert Society* (San Francisco, California: Chandler, 1962), pp.38, 279; Martin Trow, "Problems in the Transition from Elite to Mass Higher Education," in *Policies for Higher Education* (Paris: OECD, 1974); and Ulrich Teichler, *Changing Patterns of the Higher Education System: the Experience of Three Decades* (London: Jessica Kingsley Publishers, 1988).
14. The nature of mass higher education in industrialized countries, as argued by educational convergence theorists, is complicated by another change in higher education – the emphasis on research in higher education in which few institutions, and few people participate. Floud and Halsey suggest that innovation and research have been institutionalized in higher education. According to Clark Kerr, higher education becomes a centre of the "knowledge process" in the "knowledge industry" for national economic and military growth. For Burton Clark, higher education serves as the transmitter and creator of knowledge, particularly scientific ideas which transform work and society. Highly trained people, particularly holders of doctoral degrees, produce ideas and technological innovations. Clark also suggests that in addition to the existing primary, secondary, and tertiary sectors in the economy, these highly trained people can form a fourth sector. These knowledge elites can serve as academicians in higher education or research institutes; or as technocrats in the political and economic structures of industrialized societies. See Jean Floud, and A. H. Halsey,



- "Introduction," and A. H. Halsey, "The Changing Functions of Universities," in A. H. Halsey, Jean Floud, and C. Arnold Anderson (eds.), *Education, Economy, and Society: A Reader in the Sociology of Education* (New York: Free Press, 1961), pp.2 and 456; Clark Kerr, *The Uses of the University* (Cambridge, Mass.: Harvard University Press, 1964), p.88; Burton R. Clark, *Educating the Expert Society* (San Francisco, California: Chandler, 1962), pp.38, 45, 279.
15. Max Weber argued that, in the process of the "rationalization" of education (particularly higher education) and training in industrialized societies, stresses were put on the training of professionals, dispense "rational, specialised, and expert examinations." In the process of "rationalization," the goal of education was changing from the fostering of "cultivated man" in traditional societies into the training of "specialists" in modern societies. The criterion of student selection was also no longer based on the students' "personality" or "cultural quality." According to Weber, the "cultural quality" of people produced by education varied with countries, but functioned as a qualification for people to be members of the "ruling stratum." For example, the type of education in China was literary; and in England, the gentleman. Moreover, the traditional curriculum which emphasized the development of people's "cultural quality" was being replaced by diversified and specialized programmes. The increasing domination of specializations in higher education, according to Weber, was a combined result of the growth of bureaucratization in public and private relations of authority in economy, and the increasing importance of expert and specialized knowledge. Successful graduates would be awarded diplomas and certificates. See Max Weber, "Bureaucracy," in *From Max Weber: Essays in Sociology*, edited by H. H. Gerth and C. Wright Mills and with a new preface by Bryan S. Turner (London: Routledge, new ed., 1991), pp.241-243.
  16. Burton R. Clark, *Educating the Expert Society* (San Francisco, California: Chandler, 1962), p.3.
  17. It has been argued that primary schools are entrusted with this cultural task in industrialized societies. It has further been argued that there is an institutional division of the task of transmitting social and traditional values between the three tiers of Western educational systems. This task of higher education was shifted downwards to the lower tiers in Western educational systems. No compulsory courses on moral education are imposed on students in higher education. Primary schools, as noted by Talcott Parsons, now take up the task to transmit the essential values of society to pupils in Western societies; whereas secondary schools and higher education institutes increasingly focus on vocational and professional training. See Talcott Parsons, "The School Class as a Social System: some of Its Functions in American Society," in A. H. Halsey, Jean Floud, and C. Arnold Anderson (eds.), *Education,*

*Economy, and Society: A Reader in the Sociology of Education* (New York: Free Press, 1961), pp.434-455.

18. Seth Spaulding and Joseph Herman, "Speculations from an International Perspective," in W. Roy Niblett, and R. Freeman Butts (eds.), *Universities Facing the Future* (London: Evans Brothers Limited, 1972), pp.45-59.
19. Peter W. G. Wright, "Introduction: Crossing the Border, or Creating a Shared Territory?" in the book edited by him, *Industry and Higher Education: Collaboration to improve students' learning and training* (Buckingham: Society for Research into Higher Education and Open University Press, 1990), pp.2-3.
20. Seth Spaulding and Joseph Herman, "Speculations from an International Perspective," in W. Roy Niblett, and R. Freeman Butts (eds.), *Universities Facing the Future* (London: Evans Brothers Limited, 1972), pp.45-59.
21. Talcott Parsons singled out five sets of "pattern variables": affectivity and affective neutrality; ascription and achievement; diffusion and specificity; particularism and universalism; and orientation towards collective interests and orientation towards private interests. He suggested that all existing societies can be classified according his paradigm. Marion J. Levy, one of the former students of Parsons, applied the paradigm to the Third World. See Talcott Parsons, *The Social System* (Glencoe, Illinois: The Free Press, 1951), pp.58-67, 176-177; and Marion J. Levy, "Some Sources of the Vulnerability of the Structures of Relatively Non-industrialized Societies to those of Highly Industrialized Societies," in B. F. Hoselitz (ed.), *The Progress of Underdeveloped Areas* (Chicago, Illinois: University of Chicago Press, 1952), pp.113-125.
22. W. W. Rostow holds that in the process of modernization, all societies must go through five stages: traditional society, preconditions for take-off, take-off, road to maturity, and the age of high mass consumption. See W. W. Rostow, *The Stages of Economic Growth: a Non-Communist Manifesto* (Cambridge: Cambridge University Press, 1985).
23. During the modernizing process, the socio-economic structure of a traditional society will shift gradually from simplicity to differentiation and complexity. See Neil J. Smelser, "Mechanisms of and adjustments to change," in T. Burns (ed.), *Industrial Man* (Harmondsworth: Penguin, 1969), pp.43-68; and Marion J. Levy, "Some Sources of the Vulnerability of the Structures of Relatively Non-industrialized Societies to those of Highly Industrialized Societies," in B. F. Hoselitz (ed.), *The Progress of Underdeveloped Areas* (Chicago, Illinois: University of Chicago Press, 1952), pp.113-125.

24. Modernization theorists argued that in the process of transition to modernity, the agent of change may be an innovating entrepreneur, a "marginal man," who dares to be a social deviant in traditional society; or even a "strong, centralized government" which may remove, if necessary, any obstacle to modernization. See N. J. Smelser, "Mechanisms of and adjustments to change," in T. Burns (ed.), *Industrial Man* (Harmondsworth: Penguin, 1969), pp.60-61; and B. F. Hoselitz, *Sociological Aspects of Economic Growth* (New York: The Free Press, 1965), pp.36-40.
  
25. Andre Gunder Frank argued that the underdevelopment of Third World countries was due to the unequal relations of exchange through which the economic surplus is transferred from the peripheral and satellite societies to the core or metropole societies. Despite his recognition of the fact that the dependent relations may have "positive or negative effects" on the immediate development of dependent countries, Theotonio Dos Santo argued that in the long run, more economic surplus will leave the dependent countries than is balanced by the investment by Western countries. Ingemar Fägerlind and Lawrence J. Saha summarized that the economic surplus of the periphery is transferred to the core by means of plunder, colonial or neo-colonial relationships, or the operations of multinational corporations. See Andre Gunder Frank, *Capitalism and Underdevelopment in Latin America* (New York: Monthly Review Press, 1967); Dos Santo, Theotonio, "The Crisis of Development Theory and the Problem of Dependence in Latin America," in H. Bernstein (ed.) *Underdevelopment and Development* (Harmondsworth: Penguin, 1973), p.76; Dos Santo, Theotonio, "The Structure of Dependence," in K. T. Kan and Donald C. Hodges (eds.), *Readings in U.S. Imperialism* (Boston: Extending Horizons, 1971), pp.225-236; and Ingemar Fägerlind and Lawrence J. Saha, *Education & National Development: A Comparative Perspective* (Oxford: Pergamon, 2nd ed., 1989), p.23.
  
26. Andre Gunder Frank, *Lumpenbourgeoisie and Lumpendevelopment* (New York: Monthly Review Press, 1972).
  
27. Martin Carnoy, *Education as Cultural Imperialism* (New York: McKay, 1974), pp.18-19.
  
28. Gail Kelly, "Colonial Schools in Vietnam: Policy and Practice," in Philip G. Altbach, Gail P. Kelly and Robert F. Arnove (eds.), *Comparative Education* (New York: MacMillan, 1981).
  
29. Robert F. Arnove, "Comparative Education and World-Systems Analysis," *Comparative Education Review*, Vol. 24, No. 1 (February 1980), p.51.

30. Wallerstein inserted his world systems theory the concept of semiperiphery which represents the "midway point on a continuum running from the core to the periphery," and functions as a politico-economic buffer to avoid crises arising from the dramatic economic differences between small but rich core and large but poor periphery. Wallerstein also proposed a list of semiperipheral countries according to his classification. Examples of semiperipheral countries include Argentina, Brazil, Mexico, Venezuela, and possibly Chile and Cuba in Latin America; Italy, Portugal, Spain and Greece in the outer rim of Europe; most of Eastern Europe; Finland and Norway in Northern Europe; Algeria, Egypt, Israel and Saudi Arabia in the Arab world; China, Korea, India, Indonesia, Iran, Turkey, and Vietnam in Asia; and Australia, Canada, South Africa, and possibly New Zealand in the old white Commonwealth. See Immanuel Wallerstein, *The Modern World System* (New York: Academic Press, 1974), p.102; and "Dependence in an Interdependent World: the Limited Possibilities of Transformation within the Capitalist World-economy," in *The Capitalist World-Economy* (Cambridge: Cambridge University Press, 1979), pp.69-70, 100.
31. According to Wallerstein, socialist countries, in terms of their political background and economic strength, are mere semiperipheries engaging in the capitalist world-economy. See Immanuel Wallerstein, "Semiperipheral countries and the contemporary world crisis," in *The Capitalist World-Economy* (Cambridge: Cambridge University Press, 1979), p.100.
32. According to Wallerstein, there are four modes of production: reciprocal mini-systems, redistributive world-empire, capitalist world-economy, and socialist world-government. In reciprocal mini-systems, all able persons are direct producers, but the process of reciprocal exchange results in unequal distribution of the real surplus in favour of a subgroup of direct producers, usually older males. The redistributive world-empire is marked by a stratum of non-producers. The surplus generated by the direct producers is transferred to the non-producers in the form of tribute. The capitalist world-economy is one in which the surplus of direct producers in non-core countries is transferred to the bourgeoisies in core countries via a series of market mechanisms to those engaged in the process of transference. The fourth mode of production is socialist world-government. Wallerstein held the view that "socialist world-government" is not a historical reality, and argued that it is marked by "production for use [not for profit or self-interests], equitable distribution, and a collectively agree-upon balance of use-values." Such socialist world-government, according to Wallerstein, has not yet been realized. He holds that most former socialist countries including the former USSR were not really socialist in his understanding; neither are the remaining socialist countries like the PRC. In these socialist countries, social inequality in the so-called socialist countries are still "manifestly enormous." See Immanuel

- Wallerstein, "Civilizations and Modes of Production: Conflicts and Convergence," in *The Politics of the World-Economy: The States, the Movements and the Civilizations* (Cambridge: Cambridge University Press, 1984), p.163; and "Dependence in an Interdependent World: the Limited Possibilities of Transformation within the Capitalist World-economy," in *The Capitalist World-Economy* (Cambridge: Cambridge University Press, 1979), pp.91-92.
33. Immanuel Wallerstein, "Patterns and Prospective of the Capitalist World-economy," in *The Politics of the World-Economy: The States, the Movements and the Civilizations* (Cambridge: Cambridge University Press, 1984), pp.14-16.
  34. See Immanuel Wallerstein and Peter D. Phillips, "National and world identities and the interstate system," in Immanuel Wallerstein, *Geopolitics and Geoculture* (Cambridge: Cambridge University Press, 1991), pp.140-141.
  35. Core countries have strong state-machineries to prevent peripheral countries from erecting socio-political barriers to resist economic exploitation. However, the economic penetration of peripheral countries by core ones is not unrestrained. Rather, the development of economic relations between countries are affected by both international and domestic forces. The exchange of economic goods, though unequal, can be regulated by the states concerned. The states of each tier compete for material interests with each other within the same tier and with those of the other two tiers. States can also create opportunities for domestic economic and political actors to participate in the world economy and interstate system. See Immanuel Wallerstein, "The Present State of the Debate on World Inequality," in Immanuel Wallerstein (ed.), *World Inequality* (Montréal: Black Rose Books, 1975), p.23; "Patterns and Prospective of the Capitalist World-economy," in *The Politics of the World-Economy: The States, the Movements and the Civilizations* (Cambridge: Cambridge University Press, 1984), p.17; "The National and the Universal: Can there be such a thing as World Culture," *Geopolitics and Geoculture* (Cambridge: Cambridge University Press, 1991), p.191; "World-system analysis: Theoretical and interpretive issues," in B. B. Kaplan (ed.), *Social Change in the Capitalist World Economy* (Beverly Hills, California: Sage, 1978), pp.219-235.
  36. According to Wallerstein, competing core states are involved in the struggle for their interests through the "balance of power" and "imperium." In other words, these core states are faced with a situation in which they formulate policies to ensure that no single state can gain "overwhelming supremacy," while at the same time they institute political and economic mechanisms to subordinate peripheral to core states. See Immanuel Wallerstein and Peter D. Phillips, "National and world identities and the interstate system," in Immanuel Wallerstein,

*Geopolitics and Geoculture* (Cambridge: Cambridge University Press, 1991), pp.140-141.

37. Non-core countries, as suggested by Wallerstein and Sergio Vieira, are not passive in their own political, economic and social transformations. These processes should be viewed in a larger context – the world system, and are outcomes of the interplay of domestic and external actors. See Immanuel Wallerstein and Sergio Vieira, "Historical Development of the Region in the Context of the Evolving World-System," in Sergio Vieira, William G. Martin, and Immanuel Wallerstein (eds.), *How Fast the Wind? Southern Africa, 1975-2000* (Trenton, New Jersey: Africa World Press, 1992), p.5.
38. According to Wallerstein, countries of the periphery can attain the status of "semiperiphery" through aggressive seizure by the state of opportunities such as using import substitution at moments of world-market contraction; or through competition with other peripheral countries in inviting direct investment from core countries; or through self-reliance, i.e. economic independence, such as Tanzania. The semiperipheral countries can be promoted to the core through expanding their markets in a variety of ways such as geopolitical expansion, the lowering of the costs of production, and the promotion of domestic purchasing power. See Immanuel Wallerstein, "The Present State of the Debate on World Inequality, in Immanuel Wallerstein (ed.), *World Inequality* (Montréal: Black Rose Books, 1975), p.23; "Dependence in an Interdependent World: the Limited Possibilities of Transformation within the Capitalist World-economy," in *The Capitalist World-Economy* (Cambridge: Cambridge University Press, 1979), pp.76-85.
39. Immanuel Wallerstein, "The Present State of the Debate on World Inequality, in Immanuel Wallerstein (ed.), *World Inequality* (Montréal: Black Rose Books, 1975), p.23.
40. Immanuel Wallerstein, "Friends as Foes" in *The Politics of the World-Economy: The States, the Movements and the Civilizations* (Cambridge: Cambridge University Press, 1984), pp.58-68.
41. Formerly, Wallerstein insisted that only Western countries had succeeded in the transformation into modernity. He equated modernization with Westernization, particularly in the cases of Asian and African countries. If peripheral countries are compelled by "political-cultural resistance" to make a decision between integration with and withdrawal from the capitalist world, the dialectics of the economy will take command. See Immanuel Wallerstein, "The dialectics of civilizations in the modern world-system," in *The Politics of the World-Economy: The States, the Movements and the Civilizations* (Cambridge: Cambridge University Press, 1984), pp.170-171.

42. Wallerstein defines culture as a "set of characteristics which distinguish" one group from another, or one subgroup from the others within the same group. He also posits that within the world system, there are numerous national cultures; and within countries, there are variegated cultures of ethnic groups and minorities. See Immanuel Wallerstein, "Patterns and Prospective of the Capitalist World-economy," in *The Politics of the World-Economy: The States, the Movements and the Civilizations* (Cambridge: Cambridge University Press, 1984), pp.13-14; and "Culture as the Ideological Battleground of the Modern World-System," *Geopolitics and Geoculture* (Cambridge: Cambridge University Press, 1991), p.160.
43. Immanuel Wallerstein, "Culture as the Ideological Battleground of the Modern World-System," *Geopolitics and Geoculture* (Cambridge: Cambridge University Press, 1991), pp.173-174.
44. Immanuel Wallerstein, "The National and the Universal: Can there be such a thing as World Culture," *Geopolitics and Geoculture* (Cambridge: Cambridge University Press, 1991), pp.192-193.
45. According to Wallerstein, these local leaders are formerly trained in Western countries, but attempt to emphasize the renaissance of their own civilizational heritage, and reassert their claims in the existing historical system about heritage, separateness, and rights. See Immanuel Wallerstein, "The dialectics of civilizations in the modern world-system," in *The Politics of the World-Economy: The States, the Movements and the Civilizations* (Cambridge: Cambridge University Press, 1984), pp.170-171; "The National and the Universal: Can there be such a thing as World Culture?" *Geopolitics and Geoculture* (Cambridge: Cambridge University Press, 1991), p.198. For the definition of civilization, see Immanuel Wallerstein, "Renewed Concern with Civilization(s)?" *Geopolitics and Geoculture* (Cambridge: Cambridge University Press, 1991), pp.235-236.
46. Wallerstein's concept of the world system has been criticized for reifying the concept of the world system and for its lack of an explanation of historically specific development. Jorge Larraín has suggested that Wallerstein has conducted, at a high-level, discussion of unequal exchange. Marxist economists like E. Laclau and R. Brenner criticized Wallerstein for confusing capitalism as an economic system and as mode of production. F. H. Cardoso advocated a return to a specific analysis of particular societies and their internal structures. See Jorge Larraín, *Theories of Development: Capitalism, Colonialism and Dependency* (Cambridge: Polity Press, 1989), p.133; R. Brenner, "The Origins of Capitalist Development: A Critique of Neo-Smithian Marxism," *New Left Review*, No. 104 (July-August, 1977); and E. Laclau, *Politics and Ideology in Marxist Theory* (London: Verso, 1979); and F. H. Cardoso, "The Consumption of Dependency Theory in the United

States," *Latin American Research Review*, Vol. 12, No. 3 (1977), pp.7-24. See also Alvin Y. So, *Social Change and Development: Modernization, Dependency, and World-System Theories* (Newbury Park and London: SAGE Publications, 1990), pp.220-224.

47. Robert Cowen, *Educational Structures (International Yearbook of Education, Vol. 34, 1982)*, (Paris: UNESCO, 1983), pp.3, 9.
48. Robert Cowen, *Educational Structures (International Yearbook of Education, Vol. 34, 1982)*, (Paris: UNESCO, 1983), pp.124-125.
49. For example, the educational principles and aims of some revolutionary states were framed by transnational Marxism-Leninism; and, on the other hand, by local themes: Arabism and anti-colonialism in the Syrian Arab Republic; and the construction of "material" and "spiritual" civilizations in the PRC. Historical legacy and socio-cultural factors also produced divergent educational themes in Islamic countries. See Robert Cowen, *Educational Structures (International Yearbook of Education, Vol. 34, 1982)*, (Paris: UNESCO, 1983), pp.126, 128.
50. Robert Cowen, *Educational Structures (International Yearbook of Education, Vol. 34, 1982)*, (Paris: UNESCO, 1983), pp.127-130.
51. Robert Cowen, *Educational Structures (International Yearbook of Education, Vol. 34, 1982)*, (Paris: UNESCO, 1983), p.19.
52. Robert Cowen, *Educational Structures (International Yearbook of Education, Vol. 34, 1982)*, (Paris: UNESCO, 1983), pp.125-127.
53. Robert Cowen, *Educational Structures (International Yearbook of Education, Vol. 34, 1982)*, (Paris: UNESCO, 1983), p.132.
54. Robert Cowen, "Schools and Selected Aspects of Culture from the Perspective of Comparative Education: Neither a Borrower Nor a Lender be," a paper presented in the Symposium on International Perspectives on Culture and Schooling held by the Department of International and Comparative Education, Institute of Education, University of London on 11 May, 1993.
55. In this thesis, higher education refers to education of the third level, first stage of the type that leads to first university degrees, and the third level, second stage of the type that leads to postgraduate degrees. In this sense, this thesis will focus on degree-awarding, not diploma-awarding, institutions in both countries. Universities and specialized colleges of the PRC as degree-awarding institutions will be included in this thesis, while colleges for professional training and short-term vocational universities as diploma-awarding institutes will be excluded. Although the PRC established the degree-awarding system in 1981, institutions of this type before 1981 will be included. Likewise, only



universities and independent colleges in the ROC will be considered as higher education institutions. Junior colleges (two-year, three-year or five-year) which are recognized in the ROC as part of higher education are excluded from the discussion, in this thesis, because students are awarded diplomas upon graduation. These graduates, unlike graduates of junior or community colleges in the US, cannot be directly transferred into degree-awarding institutions to continue their studies. For the definition of higher education, see UNESCO, *International Standard Classification of Education* (Paris: Division of Statistics on Education, UNESCO, 1976), pp.147, 213.

56. In this thesis, the central value system of a country is defined as its public statement of a system of domestic (socio-political, economic and cultural) and international (political and economic) relations and values, invoked by the political leaders of the monolithic state and transmitted to the people by state or state-related agencies. In practice, the "central value system" normally refers to Confucianism in Imperial China; to socialism with particular emphasis on the Four Cardinal Principles in the PRC; and to the Three People's Principles in the ROC. This thesis initially accepts and later demonstrates that disputes about, and the social construction of the central value system, are continuous processes.

## **CHAPTER TWO**

### **HISTORICAL CONTEXTS OF HIGHER EDUCATION IN THE PRC AND ROC**

#### **2.1 PURPOSE AND ARGUMENT**

The purpose of this chapter is to describe the historical contexts of higher education of the PRC and ROC. The chapter highlights those antecedents in pre-1949 Chinese higher education which were similar to those found in both contemporary Chinese higher education systems (1949-1993). In particular, the chapter discusses the characteristics of traditional Chinese socio-political culture, and the interactions between pre-1949 Chinese higher education, the state, and Confucianism.

Pre-1949 Chinese higher education can be divided into two major periods: classical (before the 1840s) and transitional (between the 1840s and 1940s). Chinese higher education between the 1840s and 1940s is referred to in this thesis as "transitional" for three reasons. Firstly, this period saw the introduction of Western philosophy and Western institutions into classical Chinese higher education. Thus began the struggle between the preservation of cultural identity and the development of external links for economic modernization in Chinese higher education. Secondly, at this time the role of Chinese higher education shifted from the recruitment of literati officials to the production of technical cadres. Thirdly the end of this period marked the emergence of two separate contemporary Chinese higher education systems which were illuminated by different ideological visions and developed in

different social systems.

The argument of this chapter is that pre-1949 Chinese higher education faced similar tensions between the development of external links with other countries and the selective refusal of foreign values which (were deemed challenging to the official ones) later occurred in the higher education systems of the PRC and ROC. The social revolution in China in 1911 did not solve the tension. The Chinese revolutionaries in the 1910s ended the longstanding monarchy, but did not institutionalize opposition in the political structure. Therefore, they did not manage to transform traditional Chinese socio-political culture (which emphasized loyalty to numerically few political leaders and observance to social norms prescribed by them) into a culture marked by public political pluralism. Thus both the "new" societies -- the PRC and ROC - - inherited this problem.

The argument is developed in the following manner. First, it is suggested that the government of Imperial China played a dominant role in determining the scope and direction of the development of classical Chinese higher education. The imperial state created a macro-context in which the contacts between Chinese and foreign cultures were minimized, and deliberately created a context in which classical Chinese higher education stressed Confucianism which emphasized moral education. Second, the incorporation of foreign methods and technology into China did not necessarily mean the synthesis of the Chinese Confucian value system and Western value system in transitional Chinese higher education between the 1840s and 1940s. During this period, Chinese higher education made changes

in curricular and institutional structures for accommodating Western learning, and at the same time the state controlled these structures for the transmission of central values to students.

This chapter is organized into two parts: classical Chinese higher education; and transitional Chinese higher education.

## **2.2 CLASSICAL CHINESE HIGHER EDUCATION**

By the 1840s, China, Zhōngguó (The Middle Kingdom), had had commercial and cultural contacts with many countries in the previous 2000 years. However, classical Chinese higher education did not contain any foreign elements, and evolved only around the Confucian tradition.

This section attempts to explain the self-development of classical Chinese higher education through the description of the relation between Imperial China and foreign countries, and through the demonstration of the interplay between classical Chinese higher education, Confucianism and the imperial state. Confucianism is used in this thesis to refer to a broad tradition which was developed around the major teachings of Confucius (Kǒng-zǐ, 551-479 B.C.) in Imperial China before 1911.<sup>1</sup>

This section argues that the Chinese imperial state confined the scope and emphasis of the development of classical Chinese higher education at two levels: inter-cultural and intra-cultural.

At the inter-cultural level, the imperial state adopted a policy of unequal transmission of cultures, i.e. China exported its culture to other countries, but limited the contacts of foreign cultures with the Chinese culture in China. The

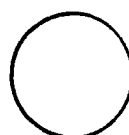
imperial state believed that China was the economic and cultural core of its "world" - East Asia, and rejected any infiltration of foreign cultures into the imperial systems.

At the intra-cultural level, the imperial state suppressed other schools of thought in the political structure, and constrained classical Chinese higher education to evolving mainly around Confucianism through the creation of relations between education, Confucianism and the imperial government. Therefore, classical Chinese higher education had a strong institutional structure to transmit Confucian values and to resist the infiltration of non-Confucian traditions including technical education.

The detailed categories of this section are: the international relations of Imperial China; the sociology and education philosophy of Confucianism; and the institutionalization of classical Chinese higher education. The examination of the international relations of China is to show its cultural policies towards other countries. The discussion of the sociology and education philosophy of Confucianism offers an explanation for the imperial state's preference for adopting Confucianism as the central value system. The analysis of the institutionalization of classical Chinese higher education is to demonstrate how the imperial state transmitted the central value system across different dynasties.

### **2.2.1 Sino-centric International Relations of Imperial China**

This section describes the international relations of Imperial China and offers an explanation for why and how it preserved its cultural and political identity



at the international level. This thesis suggests that the policy of unequal cultural transmission of Imperial China was a reflection of its Sino-centric worldview, and was demonstrated in its cultural and economic policies towards foreigners in China or abroad.

The Chinese policy of unequal cultural transmission, this section first argues, was an expression of its Sino-centric worldview, i.e. China perceived itself as the core of its "world" and other countries as peripheries. The Sino-centric perception of Imperial China, sometimes called "dynastical cosmology"<sup>2</sup> or "Sinocentric cosmology,"<sup>3</sup> started with two premises: China as the centre of its "world," and its emperors as "sons of Heaven" and rulers of all countries. The Sino-centric worldview of China had roots deep in the classical Confucian thinking of the 6th century, B.C. and lasted for more than two thousand years. According to Confucius, China was a cultural centre of its "world"; and those tribes or countries without Chinese rites were described as "barbarians" (yǐ) and were regarded as inferior to China.<sup>4</sup> Chinese rites were supposed to have the power to civilize other cultures,<sup>5</sup> but not to be eroded by other cultures.<sup>6</sup> In the 12th century A.D., the Japanese were called the "barbarians of a small island."<sup>7</sup> In the 18th century, the Chinese Emperor Qián Lóng of the Qīng Dynasty called the British merchants "barbarian merchants" and their vessels "barbarian vessels." He declared that China was self-sufficient because it possessed "all things" and there was "no need to import" the products of outside barbarians.<sup>8</sup>

The perception of China as a cultural centre of its world was reinforced by other factors. Hǎiguāng Yān has suggested that China found it difficult to

accept other cultures because it perceived itself as a self-sufficient system in which both spiritual and material constructions were superior to those of other countries, and on which they depended.<sup>9</sup> Samuel S. Kim has pointed out that the geographical barriers surrounding China reduced the contacts between Chinese and foreign cultures; and that no rival civilization in Asia could compete with the Chinese culture.<sup>10</sup>

Moreover, China regarded herself as a political power centre of its "world," and particularly as an overlord receiving tribute from its vassals within the "redistributive world-empire" in East Asia.<sup>11</sup> Like Japan, Korea began to pay tribute to the Chinese court during the Sòng Dynasty (960-1279 A.D.).<sup>12</sup> The founding emperor of the Míng Dynasty (1368-1644 A.D.) even believed that the previous Chinese emperors were endowed with supreme power by Heaven to rule over the world. He also emphasized that the Chinese formed "the central power within [the empire perceived by the Chinese] to govern the barbarians, while the barbarians submitted to the rule of the Chinese."<sup>13</sup>

The Chinese policy of unequal cultural transmission, this thesis further argues, was demonstrated in the control of the interactions between the Chinese culture and foreign cultures by Imperial China. China exported its culture to other countries. Overseas students in China received Confucian education, and took Confucianism and Buddhism back to their home countries.<sup>14</sup> As a result, the cultures of other East Asian countries, like Korea and Japan,<sup>15</sup> were influenced by Chinese characters and Confucianism.<sup>16</sup> In the 15th century, A.D., the export of Chinese culture to other countries with

the help of military forces was perceived by the Chinese authorities as a mission of cultural transformation.<sup>17</sup> Furthermore, China assaulted those countries including Nepal which resisted China's cultural exports in 1796 A.D.<sup>18</sup>

On the other hand, China limited the infiltration of foreign cultures as indicated in its economic policies towards foreigners in China. Although the Chinese attitude of ethnocentrism did not exclude economic links with other countries, a series of control measures was adopted to minimize foreign influences. The measures included high taxes on foreign goods,<sup>19</sup> limitations on the freedom of movement for foreigners who were seen as the carriers and transmitters of foreign values and beliefs in China,<sup>20</sup> the prohibition of intermarriage between Chinese and foreigners,<sup>21</sup> and the requirement to practise Chinese customs and ceremony in the court of Imperial China.<sup>22</sup>

The total rejection of foreign cultures, this thesis finally argues, took place in the political structure rather than in the civilian life of China. In the Later Hàn Dynasty (58-75 A.D.), Emperor Míng opened up China to Indian Buddhism. Since the introduction into Imperial China, Buddhism, as noted by Bertrand Russell in 1922, had been the only foreign religion tolerated in the Chinese civilization.<sup>23</sup> Buddhism was allowed to exist even when Confucianism first faced the danger of being "polluted" by Buddhism and Legalism promoted by Confucian Wáng Tōng in the Suí Dynasty (581-618 A.D.).

However, the importation of foreign value systems may challenge indigenous political leadership of Imperial China. When Confucianism, the



central value system of Imperial China, was threatened by replacement in the political structure with Buddhism and the possibility of the "Indianization of China" in the Mid-Táng Dynasty (618-907 A.D.),<sup>24</sup> Confucian political leaders, like Hán Yù, began to criticize Buddhism severely by appealing to the Chinese tradition and the Confucian authority.<sup>25</sup> Finally, Buddhism was purged from all governmental systems under a decree issued by Emperor Wǔ Zōng in 845 A.D.<sup>26</sup> In contrast to the religious persecutions in the Near East and Europe, the purge of Buddhism in China was aimed only at the clergy and their property. No suppression was launched against Buddhist lay believers.<sup>27</sup> Despite its influence on the daily life of the Chinese people, Buddhism was not permitted to influence the political dimension of China,<sup>28</sup> and failed to modify the Sino-centric perception of the imperial state.<sup>29</sup>

Although there were inter-cultural conflicts between Confucianism and Buddhism in the political structure of China, the imperial state isolated classical Chinese higher education from foreign influences by means of the creation of a macro-cultural context which was limited in its contacts with foreign cultures. The next section will examine the domination of Confucianism over other domestic value systems within the Chinese culture of China.

### **2.2.2 Confucianism and the State**

This section focusses on the sociology of Confucianism, and then discusses the relations between the imperial state and Confucianism. This section argues that at the intra-cultural level, Chinese emperors adopted Confucianism as the

central value system to legitimize their political leadership, and suppressed other value systems which would challenge the domination of Confucianism in the political structure.

Confucianism advocated a value system which helped the Chinese to conform to the existing socio-political order of Imperial China through the practice of personal and social morality in a hierarchical society. First of all, Confucians justified the existence of a hierarchical society in Imperial China by advocating that Chinese society was marked by five major relationships of human beings: between emperor and subordinate, between father and son, between husband and wife, between old and young, and between friends. The first relation was dynastic; the last one was social; and the other three were familial. All relations were vertical and non-egalitarian, except the last. These relations were "ascriptive," in Talcott Parsons' sense, because they are based on physical and non-achievable social attributes such as sex, age, and kinship.<sup>30</sup> Moreover, there was another social stratification in accordance with economic status inside Chinese society. The classes of people were ranked in the order of "scholar-official, farmer, artisan, and merchant."<sup>31</sup> The high status of scholar-official was also reflected in an old Chinese saying: "the pursuit of knowledge is superior to all the other occupations."<sup>32</sup>

Secondly, Confucians believed that the socio-political status quo and harmony of Imperial China would be preserved if the Chinese people conformed to the existing order of "superordination and subordination" among the five relationships.<sup>33</sup> The state of Imperial China was "personified by the emperors" who claimed to rule on the strength of popular support and "a

mandate of heaven," and who relied on the cooperation of literati officials.<sup>34</sup> The imperial Chinese society, as suggested by Confucius, would be harmonious if all citizens observed their own personal and social duties.<sup>35</sup> The responsibilities of citizens were broadly summed up in their practice of the principle of zhōng shù, i.e. faithfully fulfilling their duty to the best of their abilities, and benevolently using themselves as a measure to treat others.<sup>36</sup> It was reported that there were 300 rules of ceremony and 3,000 rules of demeanour for a sage to observe.<sup>37</sup> In particular, Confucianism suggested that the promotion of two great moral rules - filial piety to parents and loyalty to the emperor - would help people conform to the socio-political status quo of the imperial Chinese society. Confucianism could be regarded as the "champion of familism and feudalism."<sup>38</sup> Therefore, the Confucian tradition provided a rational justification of the social system for its leaders in Imperial China.<sup>39</sup>

The emperors of China, this thesis further argues, utilized a central value system to legitimize their political leadership, and to promote socio-political harmony among the Chinese empire. China, as noted by John A. Hall and G. John Ikenberry, had a weak state infrastructure, and many social norms were created and reinforced through a kinship system.<sup>40</sup> The founding emperor of the Qín Dynasty (221-207 B.C.), Qín Shǐ Huáng, adopted the idea of Prime Minister, Lǐ Sī, to use Legalism<sup>41</sup> as an ideological instrument to consolidate the political unity of the first Chinese empire which was united by military forces. Therefore, Qín banned all other schools of thought. Above all, he ordered books to be burned in 213 B.C. and 460 Confucian intellectuals to

be buried alive in 211 B.C.<sup>42</sup>

However, the Qín dynasty lasted only 15 years, and Legalism was replaced by Confucianism as the central value system during the Hàn Dynasty (206 B.C. - 220 A.D.). In resolving not to suffer the fate of his predecessors whose dynasties lasted a very short time and accepting the advice of Confucian Dǒng Zhòngshū, Emperor Wǔ of the Hàn Dynasty issued an imperial edict to establish the ideology, by banning other schools and upholding only Confucianism as well as its Five Classics in 176 B.C.<sup>43</sup> Leaders of the Legalist school were discharged from the government in 141 B.C. Moreover, in the national university a wholly Confucian curriculum was established to train officials. Following the example of Emperor Wǔ, Emperor Tài Zōng of the Táng Dynasty (627-650 A.D.), issued an imperial edict to promote the Confucian classics. After these two imperial edicts, Confucianism was used frequently as an ideological tool for political unity by many founding emperors of the successive dynasties up to the Qīng Dynasty (1644-1911 A.D.).<sup>44</sup>

Confucianism, after being adopted as the state ideology, had a low tolerance of other schools of thought which did not support the imperial leadership. Indian Buddhism, as discussed earlier, challenged the status of Confucianism, and was purged from state systems in 845 A.D. In the twelfth century A.D., Neo-Confucianism split into two irreconcilable philosophical currents: the dualistic and rationalistic Lǐxué school (Study of Principles) led by Zhū-xī and Chéng brothers, and the monistic and idealistic Xīnxué school (Study of the Mind) led by Lù Xiàngshān and Wáng Yángmíng. They

competed with each other in re-interpreting the classics. At last, the Lǐxué school won the battle because Lǐxué was a useful version of Confucianism for the emperors of the Yuán, Míng and Qīng dynasties. Lǐxué did not advocate extreme political activism. On the contrary, it provided ideological support for autocratic emperors. Like classical Confucianism, it urged zealous self-cultivation through the study of past precepts and precedents.

Thus, Confucianism was used as a central value system by Chinese emperors to rationalize the hierarchical Chinese society and to legitimize their political leadership. As a result, Chinese culture, particularly the political system, was marked by the domination of Confucianism over other domestic and foreign value systems. The next two sections will discuss the domination of Confucianism in Chinese education.

### **2.2.3 Education, Confucianism, and the State**

This section describes the relations between education, Confucianism as a central value system, and the state in China. The description will centre on the philosophy and role of Confucian education. This section argues that Confucian education emphasized its cultural task for the recruitment of literati officials more than its economic task for the production of personnel of technical skills for the agricultural economy.

Confucian education, it is first argued in this section, was essentially moral education which emphasized the cultivation of the moral qualities of learners. Common to Confucians was an educational premise that human nature was malleable, and could be improved by education. In particular,

Confucius advocated that all people, regardless of their class origins,<sup>45</sup> were cognitively malleable and their educational achievements depended on their learning attitude.<sup>46</sup> Moreover, most people, according to Confucians, were morally malleable and close to one another "by nature," and they diverged as a result of learning and repeated practice.<sup>47</sup>

Later, the theme of moral malleability, rather than cognitive malleability, was articulated by Confucians. Mencius (Mèng-zǐ, 372-289 B.C.) asserted that human nature was originally good,<sup>48</sup> while Xún-zǐ (active period: 298-238 B.C.) regarded human nature as being innately evil.<sup>49</sup> Mencius believed that ordinary people could be trained to become sages.<sup>50</sup> The antithesis between good and evil human nature was harmonized differently by Dǒng Zhòngshū (c.179-104 B.C.)<sup>51</sup> and Zhū-zǐ (1130-1200 A.D.).<sup>52</sup> Despite different approaches, these Confucians agreed that moral goodness was the target of the development of human nature, and that people could improve on their nature through learning and training.

The emphasis on moral development by Confucianism shaped classical Chinese higher education, it is further argued in this section, to be one which preferred moral education to vocational education. Confucianism mainly comprised a set of moral teaching and precepts. A list of virtues was recommended by Confucians. For Confucius, the major elements of self-cultivation included wisdom (zhì), benevolence (rén), and courage (yǒng);<sup>53</sup> for Mencius, benevolence (rén), righteousness (yì), propriety (lǐ), and wisdom (zhì).<sup>54</sup> Hán Yù of the Táng Dynasty (618 - 907 A.D.) added trustworthiness (xìn) as the fifth quality in Mencius' list.<sup>55</sup> The methods of self-cultivation

were numerous, but they were associated with self-control in thought, speech and deeds in relation to others in a society.<sup>56</sup>

Confucius, despite his instruction to pupils in the six arts, gave priority to Rites and Music over Archery, Charioteering, Writing and Numbers.<sup>57</sup> The content of his instruction was centred around culture, ethics, devotion of soul, and trustfulness.<sup>58</sup> The "textbooks" for students were the Four Books and the Six Classics.<sup>59</sup> These "textbooks" embodied numerous moral teachings through which students could develop their human nature. Confucians believed that these teachings could enable students to acquire perfect wisdom, to master the moral principles with regard to government and the administration of a society.<sup>60</sup>

In contrast, Confucianism seldom mentioned the agriculturally dominant context of Imperial China. When asked about husbandry and gardening, Confucius openly admitted that he was not as useful for that as an old gardener.<sup>61</sup> Mencius even differentiated the role of mental work and menial work in a hierarchical society. He advocated that those who labour with their minds should govern; those who labour with their strength are governed by others.<sup>62</sup>

This section finally argues that the state of Imperial China utilized Confucian education as a political means to consolidate the leadership of the aristocratic class through the training of literati officials to staff the imperial government. First of all, Confucian education was perceived as a meritocratic means to ease the tension between aristocrats and commoners in a hierarchical society. Confucius believed that education was to regulate the path of

personal and social duties which were performed in accordance with the nature conferred by Heaven.<sup>63</sup> He also proposed education for people as one of the government's principal strategies for sustaining a nation.<sup>64</sup> For the government, the educational task was to develop the moral qualities of people within the hierarchical framework and to train them to acquire obedient attitudes towards their superiors. Through the education system, the imperial state could recruit submissive literati officials to staff the government. Confucian education was a means by which commoners had an equal chance to develop their potential for moral advancement and move up the social ladder through self-cultivation. The promotion of self-cultivation in Confucian education is a socio-political means to achieve harmony in a society. The purpose of self-cultivation was to achieve reverence, and bring peace and security first to their fellow people, and then to the whole people.<sup>65</sup>

In summary, the imperial state, despite its toleration of the infiltration of Buddhism into people's daily life, created a cultural and political context which was limited in contact with foreign influence. Among the Chinese schools of thought in the same culture, the imperial state also adopted Confucianism as the central value system to rationalize the hierarchial socio-political status quo and legitimate the political leadership of emperors. Confucian education emphasized moral education, but not technical skills. However, the quick change of the central value system within two decades (221-207 B.C.) from Legalism in the Qín Dynasty to Confucianism in the Hàn Dynasty suggested that the inter-relations between Chinese education, the state, and the central value system, could be changed as a matter of choice by



the state. The next section will examine how these inter-relations were consolidated across different dynasties (206 B.C. - 1840 A.D.).

#### **2.2.4 The Institutionalization of Classical Chinese Higher Education**

This section describes the institutionalization of the transmission of Confucianism in classical Chinese higher education. The section argues that a strong institutional mechanism was established by the imperial Chinese state in classical Chinese higher education to transmit Confucianism to students. This in turn protected the interests of Confucianism and the imperial state. The institutional defence of classical Chinese higher education was reflected in state control over classical Chinese higher education in three dimensions: administrative structure; the allocation of staff and students; and the examination system.

State controls over the educational administrative structure, the allocation of staff and students and the examination system are chosen in this section to demonstrate what types of personnel were produced in the classical Chinese higher education system. In particular, the imperial state with emperor as head of state was a major creator and keeper of the state education system in China. The allocation of staff and students indicated the distribution of educational manpower by the state for given purposes and the types of personnel who were trained for these purposes. The examination system is selected because examination contents indicated what students should have learned, and examination results gave a comparative scale of how well students mastered the contents prescribed by the imperial Chinese state in

examinations.

#### **2.2.4.1 State Leadership in Educational Administration**

The imperial Chinese state, this section argues, was the major actor in the creation and maintenance of the relations between classical Chinese higher education and Confucianism. Classical Chinese higher education was subject to the direct administrative control of the imperial state.

The classical Chinese higher education system was first established by the imperial state in China in the 2nd century B.C. The Imperial University (Tàixué) was established in the capital, Chángān. In 124 B.C., fifty young people who were over 18 years old, with good physical looking, and with high moral standard were admitted to the study of classical learning and were trained to be government officials.<sup>66</sup> Later, provincial higher education institutes (Jùnguóxué) were established in different provinces.<sup>67</sup>

Moreover, special ministers were assigned by the emperor to supervise the teaching staff. At the beginning of classical Chinese higher education, the Tàicháng (one of nine top ministers of the government) exercised his control over teaching staff. The teaching staff comprised five doctors of the Five Classics (one for each Classic) in 136 B.C. The faculty was expanded to fourteen doctors by Emperor Guāng Wǔ of the Later Hàn Dynasty (25-56 A.D.). The faculty members, after passing numerous state-controlled examinations, were appointed by the imperial government.

Later, despite several challenges for the diversification of fields of study to include subjects other than Confucian studies,<sup>68</sup> the whole classical Chinese

higher education system was still under the leadership of the imperial state. Since the greatest challenge came in the early Táng Dynasty, its classical Chinese higher education system is used as an illustration of state leadership.

In the early Táng Dynasty, the classical Chinese higher education system was divided into two levels: central and provincial. The schools within the central system were sub-divided into those directly administered by the Ministry of Education (Guózǐjiàn), and those under other ministries. Directly under the Ministry of Education were Confucian schools and specialized schools. Confucian schools included the School of National Youth (Guózǐxué), the Imperial University (Tàixué), and the School of Four Gates (Sīménxué); while specialized schools comprised the School of Law, the School of Calligraphy (Shūxué), and the School of Mathematics (Suànxué). Under other ministries, but still related to the Ministry of Education, were the School of Humanities Appreciation (Chóngwénxué Quǎn) and the School of Promoting Humanities (Hóngwénxué Quǎn) for the study of Confucian classics by the children of the royal kin and the most senior officials; the School of Metaphysics (Chóngxuánxué Quǎn) for the study of metaphysics; and the School of Medicine (Yīxué Quǎn) for the recruitment of court doctors.<sup>69</sup>

Thus, the classical Chinese higher education system was marked by a vertical administrative hierarchy: geographically from the capital to other provinces; and in term of accountability, from faculty members to state ministers, and finally to the emperor as head of state. The next section will discuss how the imperial state controlled the areas of study through the allocation of teachers and students in classical Chinese higher education.

#### 2.2.4.2 Allocation of Teaching Staff and Students

Despite the diversification of the fields of study, a major purpose of classical Chinese higher education, it is argued in this section, was to protect the propagation of Confucianism, and the interests of the privileged class. This was reflected in the allocation of more educational input (teachers and students) for Confucian studies than other subjects in classical Chinese higher education. The data for the analysis of the distribution of staff and students were drawn from the Táng dynasty which faced the greatest challenge of diversification.

There were three indicators to support the argument of this sub-section. First, more staff members were allocated for Confucian studies than non-Confucian ones. One of the two deputy-ministers was allocated specifically for Confucian studies.<sup>70</sup> Within the system directly under the supervision of the educational minister, the ratio of the total number of doctors (bóshì) and assistant lecturers (zhùjiào) between Confucian and non-Confucian studies was 34 : 10 (see Table 2.1). In other words, 77.3% of teaching staff were allocated to Confucian studies. Second, most of the students were trained in the Confucian tradition. In terms of student enrolment, the ratio was 2,100 : 110, i.e. 95% of the students were trained under the Confucian tradition (see Table 2.2). Third, in the provincial academy, one doctor, with the help of one assistant, was fully responsible for teaching the Five Classics.<sup>71</sup> These three indicators suggest that, despite the broadening of the field of study, classical Chinese higher education was still highly Confucian.

**Table 2.1** Number of doctors and assistant lecturers in different types of higher education institutes in the Táng Dynasty.

TYPE OF INSTITUTE	DOCTORS	ASSISTANT LECTURERS	TOTAL STAFF
School of National Youth	5	5	10
Imperial University	6	6	12
School of Four Gates	6	6	12
School of Law	3	1	4
School of Calligraphy	2	1	3
School of Mathematics	2	1	3

**Source:** Xiū Ōuyáng, *Xīn Táng Shū: Bǎiquān Zhì*, Vol. 48, Part 38, pp.16-18. It is in *Xīn Táng Shū* (History of the New Táng Dynasty) (Beijing: Zhōnghuá, 1975), Vol.4, pp.1265-1268.

**Table 2.2** The quota and the class origin of students enrolled in different imperial schools in the Táng Dynasty.

TYPE OF INSTITUTE	QUOTA	BASIC CLASS ORIGIN
School of National Youth	300	3rd-rank official or above
Imperial University	500	5th-rank official or above
School of Four Gates	1300	500 from 7th-rank official or above, 800 from excellent commoners.
School of Law	50	8th-rank or below; or academically good commoners
School of Calligraphy	30	
School of Mathematics	30	

**Source:** Xiū Ōuyáng, *Xīn Táng Shū: Xuǎnjǔ Zhì*, Vol. 44, Part 34. It is in *Xīn Táng Shū* (History of the New Táng Dynasty) (Beijing: Zhōnghuá, 1975), Vol.4, pp.1159-1160.

The partial distribution of staff and students for Confucian studies also reflected the patrimonialistic nature of classical Chinese higher education. The

interests of the privileged class in China were defended, in Max Weber's sense, through personal networks and cliques,<sup>72</sup> and through school networks controlled by the state. First of all, the type of higher education received by students depended on their class origin, particularly, the ranking of their fathers in the state hierarchy (see Table 2.2). The higher the rank of their fathers, the more chance the children had of access to a more privileged school for Confucian studies, and hence the greater possibility they had of access to high official posts.

Moreover, the children of the relatives of the emperor could easily gain access to classical Chinese higher education in the court.<sup>73</sup> In contrast, the children of commoners had very little chance to get official posts of high rank through education as a meritocratic means. If these children succeeded in obtaining a place in classical Chinese higher education, most of them were enrolled in specialized colleges, rather than Confucian colleges.<sup>74</sup>

The partial allocation of students and teachers for Confucian studies was the second type of institutional defence to safeguard Confucianism as the central value system, and the interests of the privileged class in China.

#### **2.2.4.3 Civil Service Examinations**

The system of civil service examinations, it is argued in this section, was the third type of institutional defence which firmly consolidated the relations between the imperial state, Confucianism and classical Chinese higher education.

The examination system directly linked classical Chinese higher

education with officialdom. An oral civil service examination system (chájǔ) emerged in the Hàn Dynasty (206 B.C.- 220 A.D.) to select officials. Later, the oral examination system was replaced with a written civil service examination system (Kējǔ) in the Suí Dynasty (581 - 618 A.D.) in order to minimize the subjective selection, and to stop the development of an hereditary aristocracy.<sup>75</sup> The importance of Confucian examination was intensified by Wáng Ānshí who introduced a pyramidal tripartite university system, Three-Hall System (Sānshè), in 1071.<sup>76</sup> Only extremely bright graduates would be awarded high-ranking posts.<sup>77</sup> However, the Three-Hall system was abolished in 1104 A.D. Written examinations were quickly reinstated after Wáng lost his power. The candidates for the examinations were students coming from the imperial higher education system. Later, extremely distinguished people could also be recommended for examinations by provincial officials in the early Táng Dynasty.<sup>78</sup>

Moreover, Chinese civil examinations which were used to recruit state officials were Confucian-oriented. The Confucian classical writings set the content for students to study and for examiners to ask questions. The basic texts were the Confucian Four Books and Five Classics, which contained about 400,000 characters, to be memorized by students.<sup>79</sup> The Five Classics were believed to contain ideas derived from a variety of disparate strands of thinking, and could be referred to for solving political and moral problems.<sup>80</sup> Commentaries on the Classics were also included as part of the syllabus.<sup>81</sup> The more Classics they successfully passed, the higher rank they were awarded in the government hierarchy.<sup>82</sup> Those who failed the examination

were allowed to repeat it or were dismissed. The subjects of examination were numerous.<sup>83</sup> Except the *jīnshì* (belles lettres) examination which was concerned with current national affairs and policy-making matters, most examinations tested the candidates' ability to memorize classical texts.<sup>84</sup>

Behind the Chinese civil servant examination system was the consolidation of the relations between classical Chinese higher education, Confucianism and the imperial state. The standardized textbooks reinforced personal and social ethics, and promoted filialty to parents and loyalty to emperors through different dynasties. The examination system was an actualization of Confucian meritocratic principles and provided a channel for people to procure high official posts in a hierarchical society. On the other hand, the examination system became a vehicle to achieve, to nurture and sustain the strength of Confucian classical learning.<sup>85</sup> The formation of a literati-dominated bureaucracy began to replace China's hereditary aristocracy in the government hierarchy. The literati bureaucrats staffed the government from the Sòng dynasty (960-1279 A.D.) down to the demise of Qīng Dynasty (1616-1911 A.D.).<sup>86</sup> The literary curriculum and examination lasted nearly two thousand years until they were abolished by the Qīng government in 1905 A.D.

In conclusion, this section has described the relations between classical Chinese higher education, Confucianism, and the imperial state of China. It has been argued that traditional socio-political culture in Imperial China was marked by limited toleration for foreign cultures, and was paternalistic. Classical Chinese higher education was institutionalized in a Sino-centric



context, and deliberately linked with Confucianism by the state to defend its political interests. Classical Chinese higher education emphasized its cultural tasks more than economic tasks. This resulted in the formation of the literati tradition which emphasized the pursuit of moral development, but which was detached from the agricultural economy of China and from international interactions. In contrast to Western education, Classical Chinese higher education depreciated professional education, particularly in science and technology.<sup>87</sup> The weakness of classical Chinese higher education was fully revealed by the military challenge of foreign countries near the middle of the 19th century. How Chinese higher education changed when China was forced to open up to Western countries is the major concern of the next section.

### **2.3 TRANSITIONAL CHINESE HIGHER EDUCATION**

This section describes the development of transitional Chinese higher education in China between the 1840s and 1940s. The section highlights the struggles between Chinese education and Western learning.

The argument of this section is that the incorporation of Western educational methods and learning into transitional Chinese higher education between the 1840s and 1940s did not necessarily mean the synthesis of Chinese and foreign value systems in the struggles between Chinese education and Western learning. The struggles were initiated by the technological inferiority of China, and were about the balance between Confucian education and Western learning in Chinese higher education. Behind the struggles was a mixed perception of the cultural superiority and technological inferiority of

China. The heart of the struggles was the Chinese fear of the replacement of the Confucian value system with a Western one which might penetrate, together with Western learning, into the Chinese system.

In the second half of the transitional period (1910s-1940s), the concept of loyalty to numerically few political leaders and observance of social norms prescribed by them, this section further argues, prevailed in China, despite the abolition of the monarchical political system by the first social revolution in 1911, and despite the change in the content of central value system. Between 1911 and 1920, the Republican government incorporated Confucianism into the Three People's Principles. Although the political leadership of China was split into two after 1921, the Chinese Communist Party adopted socialism as the party's ideology; and the Chinese Nationalist Party still upheld the Three People's Principles.

Finally, this section argues that Chinese higher education in the whole transitional period had both the institutional flexibility to accommodate Western learning for the improvement of the national economy, and institutional defences to preserve the cultural and political identity prescribed by the existing political leaders.

The detailed categories in this section are: technological inferiority of China, four major responses to the struggles in transitional Chinese higher education, and its institutionalization. Discussion of each category shows the tension between openness and closure to Western learning in the transitional Chinese higher education system. In particular, the discussion of the technological inferiority of China serves as a link between classical and

transitional Chinese higher education because the lack of military technology forced China to expand the scope of its higher education to include Western learning. But this opening up to Western learning created struggles between the preservation of Chinese identity and the pursuit of national construction. Therefore, the summary of the Chinese responses to the incorporation of Western learning gives an overall picture of these struggles and helps locate the "core" of these struggles. The analysis of the institutionalization of transitional Chinese higher education is used to demonstrate the existence of the tension between the cultural and economic tasks of higher education between the 1840s and 1940s.

### **2.3.1 The Technological Inferiority of China**

The cohesive relation between classical Chinese higher education, Confucianism, and the imperial governments which had lasted for more <sup>than</sup> two thousand years, this thesis suggests, was broken by an external factor which was strong enough to shatter all components of the relation. The external factor was the military invasion which seriously threatened the survival of China because of its technological inferiority, and challenged the Sino-centric perception of China.

From the 1840s, the ethnocentric perception of China as the core of its "world" was in crisis. During the late Qīng Dynasty between the 1840s and 1860s, the imperial government faced a series of military defeats and signed several treaties to concede some portions of its empire to Western countries.<sup>88</sup> The defeats shattered the ethnocentric perception of the imperial state, and

forced it to admit its technological inferiority and educational backwardness. Lǐ Hóngzhōng, one of the top government officials, admitted that the technology of making artillery and ammunition could not be achieved by China, and these weapons could not be found in China.<sup>89</sup> In his 1889 edict, Emperor Quāng Xù expressed his admiration for Western technological advances and military achievements. He officially pronounced that Westerners were no longer barbarians but "superiors."<sup>90</sup> Moreover, the Emperor desperately conceded that Chinese scholars were without a solid and practical education, and Chinese artisans were without scientific instruction.<sup>91</sup>

In order to strengthen the technological infrastructure, China adopted a strategy to import Western methods and technology from the 1840s. In 1846, Wèi Yuán (1794-1857) was the first to suggest that China should incorporate Western military techniques to strengthen national power. Wèi proposed a strategy of "using barbarians to attack barbarians, using barbarians to negotiate with barbarians, and learning the superior techniques of the barbarians to control the barbarians" in 1846.<sup>92</sup> In less vigorous terms, the strategy was to learn Western techniques, and then use them to strengthen China and to guard against any potential Western military assaults.

The importation of Western methods and technology meant the modification of the Sino-centric perception of the imperial state as the core of its "world." First, China expanded its "world" and included Western countries as competitors who were more advanced in military and technological arts than China. Second, China realized that a literati government, and an agricultural economy, were not sufficient to save China from the military and

economic aggression of technologically advanced Western countries. Third, the Confucian value system which had served so admirably in Imperial China to maintain harmony in a vast agrarian society suddenly became vices in the industrial conditions created by Western Europe. Most of what Chinese believed gave them their cultural identity as Chinese seemed to be "irrelevant or worse in the new world."<sup>93</sup>

However, the modification of Sinocentric perception initiated a series of struggles between Confucian education and Western learning in the transitional Chinese higher education system. The next section will examine these struggles.

### **2.3.2 Struggles of Transitional Chinese Higher Education**

This section outlines the struggles between Confucian higher education and Western learning in the transitional Chinese higher education system between the 1840s and 1940s. The struggles over the importation of Western learning, it is argued, reflected the Chinese fear of the replacement of the Confucian value system with a Western one. This section will highlight four major Chinese attitudes to Western learning: rejection, revolution, supplement, and synthesis. A discussion of each attitude shows the struggle about how to locate Western learning in the Chinese higher education system.

The "rejection" strategy emphasized complete resistance to any change in traditional Chinese values and systems, and total refusal of any importation of methods and technology from the West. The proponents of this strategy were some state officials like Wēi Rén and Yú Língchén in the late 19th

century.<sup>94</sup> The Boxer Uprising in the 1900s against foreigners and Chinese Christian converts was another resistance movement against Western influence.

In contrast to "rejection" strategy, the "revolutionary" strategy was to overthrow entirely the Chinese value and political systems including the Confucian value system, and to replace them with Western ones. Hóng Xiùquán was the first one to replace Confucianism with Christianity during the Movement of the Heavenly Kingdom of Great Peace (Tàipíng Tiānguó) between 1850 and 1860.<sup>95</sup> Then came the May Fourth Movement in 1919 which downplayed Confucianism and urged its replacement by Western science and democracy. Individual advocates of complete acceptance of Western cultures included Fù Sīnián<sup>96</sup> and Hú Shì.<sup>97</sup>

Between the "rejection" and "revolutionary" strategies were the "supplement" and "synthesis" strategies. The "supplement" strategy was to improve conditions for the survival of China by means of the imitation of "Western means," but to keep strict adherence to "Chinese values" - Confucian values. In 1898, Emperor Quāng Xù issued an edict to support this strategy.<sup>98</sup> In the same year, Zhāng Zhīdòng espoused the dichotomization of "Chinese learning for morality" and "Western learning for utility" (zhōng tǐ xī yòng).<sup>99</sup>

The "synthesis" strategy was similar to the "supplement" strategy in advocating for the importation of Western techniques, but was different from it in allowing the interactions of Chinese values and Western ones. Liáng Qǐchāo advocated that Western learning had socio-political values which were good to the training of Chinese students.<sup>100</sup> Cài Yuánpéi, the Minister of

Education of Republican China in the early 1910s, attempted to "equate" some emphases of Chinese education with those of Western learning.<sup>101</sup>

These four strategies ("rejection," "revolution," "supplement," and "synthesis") represented four different attitudes to the handling of Confucian moral virtues and Western techniques in Chinese education. Common to the four strategies were the recognition of the weakness of classical higher education which biased towards moral and literati learning, and the realization of the importance of science and technology to the development of the Chinese national economy.

However, the four strategies differed in the terms in which China should deal with science and technology from the Western world, and to what extent (see Table 2.3). The "rejection" approach reflected the persistent perception of ethnocentric superiority. Its proponents believed that China had enough resources to build a scientific-technological tradition as the West had. They totally rejected any learning from Western nations. The "revolution" strategy was in favour of the total acceptance of the Western learning; while the supplement and synthesis strategies suggested selective adoption.

**Table 2.3** Comparison of the four strategies to the tension between Chinese learning and Western learning in this thesis.

STRATEGY	CHINESE VALUES	WESTERN LEARNING
Rejection	Kept intact	Totally rejected
Revolution	Totally rejected	Totally accepted
Supplement	Kept intact	Selectively adopted
Synthesis	Allow interaction	Selectively adopted

Moreover, the four strategies differed in their location of the Confucian value system, particularly with respect to the scientific-technological tradition, in transitional Chinese higher education. The "revolution" approach attempted to overthrow the Chinese value system, while the other three still regarded them as essential. The "synthesis" approach allowed interaction between Chinese and Western values, but the "supplement" approach kept Chinese values intact as did the "rejection" approach.

These four attitudes of the Chinese people to Western learning, this thesis argues, reflected Chinese fears of the complete loss of the perception of China as the core of the "world." China realized that it was no longer a "mini-empire" in the world, and that the age of tribute from countries in East Asia was over. Her links with Western countries were in the form of treaties. China had to cede parts of its declining empire to other countries, and national survival was frequently threatened by foreign military aggressions. In other words, China acknowledged that it had already lost its "core" status (economic and military) in a larger world.

China, despite her wish to strengthen national power, lacked competent military technology and high-level manpower as a result of classical higher education which was literati-oriented and weak in linking with the domestic economy. A quicker way was to import Western learning into Chinese higher education or send students abroad to acquire necessary skills.

However, China did not want to lose its last stronghold – Chinese civilization which was marked by the Confucian tradition. The proponents of the four strategies to Western learning made three common assumptions.



They firstly assumed that the importation of Western methods and systems would cause the diffusion of Western values (democracy and individualism) into the existing higher education system. Secondly, Western values were assumed to be in conflict with Confucian values (loyalty to superordinates, like emperors; and social harmony). Finally, the advocates of the four strategies assumed that the triumph of Western learning and technology over Chinese learning and technology implied the victory of Western values over Confucian values. The replacement of the Confucian tradition by a Western one, then, meant two things to the Chinese people during the transitional period: the loss of an essential cultural mark of the Chinese people in the world; and more importantly the upsetting of the socio-political and cultural framework with which the Chinese people had lived for more than two millilena. The complete loss of the Chinese worldview was not welcomed by the Chinese. The sudden disruption of the social psychology of the Chinese was the heart of the struggles between openness and closure to Western learning during the transitional period.

Hence, China was caught in the dilemma between the selective rejection of Western values when these conflicted with Confucian values and the development of external academic links with other countries. The institutionalization of the transitional Chinese higher education system, not surprisingly, shows this tension, and will be examined in the next section.

### **2.3.3 The Institutionalization of Transitional Chinese Higher Education**

This section describes the institutionalization of transitional Chinese higher

education. The section highlights the development of external links with other countries and the selective refusal of foreign values in the transitional Chinese higher education system.

The argument of this section is that the "supplement" strategy to deal with foreign learning (keeping the Chinese central value system intact, and importing foreign methods to solve problems) prevailed in transitional Chinese higher education. The prevalence of the "supplement" strategy was marked by the coexistence of the forging of external links with foreign countries and selective rejection of foreign values in transitional Chinese higher education. For the sake of the improvement of national defence and strength, the Chinese state adjusted its higher education system to incorporate Western models of educational structure, and encouraged exchange of personnel and students. On the other hand, the Chinese state implemented compulsory measures in the form of formal and informal ideological training so as to safeguard the central value system.

The discussion in this section is complicated by two events of the early 20th century: the changes of political leadership, and also the content of the Chinese central value system in mainland China in 1911 and 1921; and the establishment of the higher education system in Taiwan by the Japanese in the 1920s. During the transitional period, transitional Chinese higher education was subject to different political leadership in different stages: the imperial government of the late Qīng Dynasty (1840s-1910); the government of the Republican China (1911-1920) after the abolition of the longstanding monarchical system in the social revolution in 1911; and the divided

governments (communist and nationalist, 1921-1949). Moreover, Taiwan was ceded to Japan between 1845 and 1945. The Japanese administration established a colonized higher education system in Taiwan between 1918 and 1945. Therefore, the analysis of the development of transitional Chinese higher education in these three periods (and in two places – mainland China and Taiwan) will be grouped together under the categories: institutional flexibility for practical purposes; and institutional defence for the preservation of cultural identity.

These two categories are used in this thesis as two sets of indicators to show the tension between the development of external academic links and selective refusal of foreign values in higher education. The indicators for the incorporation of foreign learning included the establishment of new institutions, change in curricula, and the exchange of teaching personnel and students. Each of these three indicators shows the institutionalization of utilitarian borrowing of knowledge.

The institutional defences included the establishment of compulsory courses for ideological and political education. This shows how the Chinese government implemented the transmission of official values to students over specific periods.

### **2.3.3.1 Institutional Flexibility for Practical Purposes**

Between the 1840s and 1940s, the nature and range of Chinese higher education, it is argued in this section, were broadened with the introduction of Western subjects, particularly practical ones, in mainland China and Taiwan.

The broadening was caused by the shift of the task of higher education from simply recruiting civil officials to training people for the national defence and strengthening of China. In contrast to classical Chinese higher education, the transitional Chinese higher education system had a considerable institutional flexibility to incorporate foreign educational resources for the training of local Chinese students at home or abroad for practical purposes.

#### **2.3.3.1.1 Establishment of New Institutions**

The first indicator to demonstrate the incorporation of Western learning into transitional Chinese higher education was the gradual establishment in mainland China and Taiwan of new institutions modelled upon foreign countries. These new institutions included the establishment of specialized colleges, and the legitimization and designation of higher education as the third level of education, and the establishment of missionary colleges.

In mainland China, the establishment of specialized technical colleges between the 1860s and 1898 was an initial attempt of transitional Chinese higher education to borrow a Western model of technical education. Three types of specialized colleges were established to serve different national needs. First, language colleges, like the Běijīng Language Institute (1862),<sup>102</sup> were set up for equipping personnel with foreign language and knowledge so that China would not be deceived in dealing with foreign countries. Second, military and maritime colleges were established in Tiānjīn (1885) and Quǎngdōng (1887). Third, technical and engineering colleges began to appear in the late 19th century.<sup>103</sup> All had four-year courses.

Moreover, the nature and functions of Chinese higher education in mainland China were legitimized and governed by state regulations. Chinese higher education was designated as the third level of education in the tripartite education system in contrast to the traditional two layer system (primary and higher education) in China. The system began in 1898 with the Capital University Academy Regulation (Jīngshī Dàxuétáng Zhāngchéng),<sup>104</sup> and was confirmed by the Zòudìng Academy Regulation (Zòudìng xuétáng Zhāngchéng) in 1902,<sup>105</sup> and by the Republican University Decree in 1912.<sup>106</sup> The Zòudìng Academy Regulation explicitly admitted that the new higher education system was modelled upon the systems of "Europe, America, and Japan."<sup>107</sup> The first university was the Capital University Academy (Jīngshī Dàxuétáng which was established in 1898 and is now called the Běijīng University). After it, many universities were set up. The 1912 Republican University Decree explicitly spelt out the basic functions of higher education: to teach higher learning, to train people, and to serve national needs.<sup>108</sup>

In the Republican higher education system in mainland China, new practices, like unified entry requirements, the credit system, graduation examinations, and a curricular structure for all universities and independent colleges, were introduced.<sup>109</sup> Similar to the American pattern, the curriculum was organized within colleges and departments. Students began with general study in the first year, followed by professional study in the subsequent years.<sup>110</sup> Later, the degree system was introduced into transitional Chinese higher education in 1931.<sup>111</sup>

Another foreign influence on transitional Chinese higher education in

mainland China was the rapid growth of foreign universities established and run by missionaries from Western countries in the late 19th and early 20th centuries. A treaty signed on July 28, 1868 permitted Americans to set up missionary schools in the regions they lived. Apart from primary and secondary schools, numerous missionary colleges were set up.<sup>112</sup> The foreign missionary universities dominated transitional Chinese higher education in quantity in the early 1920s. Before 1920, there were 24 missionary universities. In 1921, these universities were combined to form 16 universities with 2,017 students.<sup>113</sup> However, foreign colleges still outnumbered the Chinese universities. Before 1921, there were only 8 Chinese universities: 3 public and 5 private. In addition, only Christian universities provided higher education for girls in mainland China.<sup>114</sup>

In Taiwan, the higher education system was introduced by the Japanese colonial administration in 1918. It established five special colleges and one university between 1918 and 1945. Like those in mainland China, these institutions formed the third tier of education in Taiwan.

#### **2.3.3.1.2 Change of Curriculum**

The second indicator to show the incorporation of Western learning into transitional Chinese higher education was its change of curriculum to accommodate Western fields of study, particularly science, in mainland China and Taiwan.

In mainland China, there were 8 fields of study and 46 departments in transitional Chinese higher education before the founding of Republican China

in 1911.<sup>115</sup> The eight fields were classics (Confucian), politics and law, humanities, medicine, science, agriculture, engineering and commerce. The years of graduation were three or four years. The Confucian Institute was also established as the highest level of Chinese higher education for research. Between 1912-1921, the number of fields of study was specified to be seven, with science and humanities as the major subjects.<sup>116</sup> The previous emphasis on Confucian classics was ruled out. The Confucian Institute was also replaced by university research institutes. In 1929, education was included as the eighth field of study in transitional Chinese higher education under the University Act issued by the Ministry of Education under the leadership of the Chinese Nationalist Party.<sup>117</sup>

The requirement for the status of higher education institutes became stricter in mainland China after 1912. Between 1912-1921, an institution could only be called a university when it had the fields of humanities and science; or when it had the fields of humanities, law and commerce; or when it had the fields of science and any combination of medicine, engineering and forestry.<sup>118</sup> In 1929, an institution could not be called a university unless it offered at least 3 fields of study. One of the fields of study must be science, the other fields may be engineering, or agriculture or medicine.<sup>119</sup> In other words, science and technology became the focus of the institutionalization of Republican Chinese higher education.

Like the Republican government in mainland China, the Japanese colonial administration emphasized science and technology in the curriculum of higher education in Taiwan for practical purposes: military, economic, and

political. The Japanese government used Taiwan as a military research base to explore the resources of Southeast Asia<sup>120</sup> and as an agricultural base to supply crops for the domestic market of Japan. Politically, the Japanese colonial administration regarded those who studied humanities and politics as potential challengers to the colonial rule, and therefore limited Taiwanese students in taking these subjects.<sup>121</sup>

The practical orientation of the higher education system in Taiwan under Japanese rule was indicated by the specialties of colleges in Taiwan: the Medical College of the Taihoku Imperial University (1918) to train physicians, the Taipei College of Economics (1919) to train business personnel, the Central Taiwan College of Agriculture (1919) to train experts in farming and forestry, the Southern Taiwan College of Technology (1927) to train engineers and technical personnel, and the private Taipei College for Girls (1943) to train female teachers and professionals. The Taihoku Imperial University was established in 1928, and comprised five faculties: humanities and politics; sciences; agriculture; medicine; and engineering. However, the majority of students were Japanese, and only about 20% of students were native Taiwanese.<sup>122</sup> Among 357 students in the Taihoku Imperial University in 1944, 268 (75.1%) were Japanese and 85 (23.8%) Taiwanese. More than 80 of these Taiwanese students took the study in medicine as their major.<sup>123</sup>

#### **2.3.3.1.3 Exchange of Personnel and Students**

The third indicator to reflect the incorporation of Western learning into the transitional Chinese higher education systems in mainland China and Taiwan



was the exchange of teaching personnel and students with foreign countries.

In mainland China, foreign educators like W. A. P. Martin were permitted to teach the Western subjects in which no Chinese were qualified to instruct.<sup>124</sup> In 1917, there were more than 20 American educationists employed in the Qīnghuá University which was famous for its emphasis on science and technology.<sup>125</sup>

Moreover, mainland China began to send students to study abroad in the late 19th century for practical reasons. The first group of 30 Chinese students was sent by the Qīng government to study abroad in 1872.<sup>126</sup> During the period 1872-1875, 120 students aged 12-16 were sent to the United States for 15 years to receive foreign secondary and higher education in military training, maritime affairs, sciences, and manufacturing.<sup>127</sup>

As reflected in the countries to which China sent its students, Western techniques were more important than the Qīng's customs and national dignity. In 1877, 30 students were sent to England and France to pursue studies in maritime administration.<sup>128</sup> The military defeat of China by Japan in 1900 further encouraged overseas study. Surprisingly, a proposal for sending students to Japan was submitted to the Emperor in 1899, and 55 students were sent to receive military education in Japan in 1902.<sup>129</sup> Later, 15,000 students were sent to study in Japan in 1905.<sup>130</sup>

Between the 1910s and 1920s, the new Republican government also sent students to receive foreign training. Students were sent "to learn such science and arts" which were "not taught in China."<sup>131</sup> Successful students had to pass the provincial and state examinations before studying abroad.<sup>132</sup> It was

estimated that about 3,000 students studied under the spirit of "education through industry and thrift" (Qíngōng Jiǎnxué) in France within 1918-1922.<sup>133</sup> Among them were many famous Chinese communist leaders like Zhōu Ēnlái, Niè Róngzhēn and Dèng Xiǎopíng. Students were also sent to the former USSR to receive technological training. Noted examples were two Chinese Communist leaders, Yè Jiànyīng and Liú Bóchéng.<sup>134</sup>

In the late 1920s, the objectives in allowing students to study abroad were more utilitarian. Students who attempted to study science and engineering subjects, as suggested in a circular of the Ministry of Education in 1926, were given top priority in applications for overseas study.<sup>135</sup> This principle of sending students was reaffirmed in the 1931 educational policy.<sup>136</sup> The exchange of teaching personnel and students in mainland China was, however, interrupted by the Japanese military aggressions in 1937 and civil wars between the Chinese communist and nationalist parties in the 1940s.

In Taiwan, exchange of teachers and students was conducted mainly between Japan and Taiwan. The higher education institutions in Taiwan employed mainly Japanese staff and enrolled mainly Japanese students who lived in Taiwan. The Taihoku Imperial University (which was established in 1928 and is now called the National Taiwan University) is an example. In 1944, its teaching staff was predominantly Japanese; out of 173 staff members, 172 were Japanese, and only 1 was Taiwanese.<sup>137</sup> Because of limited access to higher education in Taiwan, many Taiwanese students went to Japan for further studies; e.g. in 1940, there were 310 Taiwanese students received higher

education in Japan.<sup>138</sup>

It can be concluded from the above discussion that traditional Chinese higher education was opened up by the Chinese authorities in mainland China and by the Japanese colonial government in Taiwan for practical purposes, with an emphasis on science and technology. The transitional Chinese higher education system was adjusted so as to incorporate foreign models of higher education, and to utilize foreign human and material resources to train Chinese students at home or abroad. The importation of Western values provided stimuli to some domestic social changes in China during the transitional period. As observed by Y. T. Tsur, foreign-trained students sent by the Qīng government brought back to China Western ideas and ideals, and helped restructure the political system of Imperial China from a monarchy to a republic along "modern lines" in the 1911 revolution.<sup>139</sup> However, foreign-trained Chinese students and foreign educators in China did not manage to transform its long-standing monarchical socio-political culture. The teachings of revolutionary leaders replaced Confucianism, and became the new socio-political norms imposed on their people. In other words, despite its institutional flexibility in incorporating foreign educational resources, transitional Chinese higher education was also marked by a concern for values in mainland China. This will be discussed in the next section.

### **2.3.3.2 Institutional Defence for the Preservation of Cultural Identity**

This section argues that the change in the contents of the central value systems in mainland China in the second half of the transitional period (between 1911

and the 1940s) did not necessarily break the relations between transitional Chinese higher education, the state and the central value system. Rather, the Chinese state established institutional defences in the transitional higher education system to transmit the central values prescribed by the Chinese political leaders. These institutional defences included the compulsory ideological requirements imposed on Chinese students at home and abroad. (It should be noted that the use of higher education to transmit Japanese culture by the colonial government in Taiwan between 1918 and 1945 is beyond the scope of this thesis.)

Transitional Chinese higher education remained a state channel to transmit central values to students before and after the Chinese revolution in 1911. The imperial government of the late Qīng Dynasty emphasized the Confucian teachings of loyalty to the emperor, and respect for the Confucian tradition in higher education.<sup>140</sup> The Republican government replaced Confucianism with the Three People's Principles of Sūn Yǐxiān as the central value system. The study of party doctrines and military training were incorporated into compulsory courses in the transitional Chinese higher education system.<sup>141</sup>

After the emergence of the Chinese Communist Party in 1921, the transitional Chinese higher education system was split into two: part of the system was controlled by the Chinese Communist Party; and the other by the Chinese Nationalist Party. However, both parties, despite different central value systems, utilized the higher education system under their jurisdiction to propagate their party ideologies.

The Chinese Communist Party established its higher education system to propagate communism and train its party cadres. The Húnán Self-study University (1921) and Shànghǎi University (1922) were examples in the initial stages.<sup>142</sup> The Húnán Self-study University was a research centre of Marxism and Leninism, and a pilot base for the introduction of communist higher education on Chinese soil. The Húnán Self-study University preached the communist ideals: the balance between cognitive and physical development, the reduction of the gap between mental and menial labourers, and the importance of productive labor during study.<sup>143</sup> At a later stage, the Anti-Japan Military and Political University (1936) was established with the indoctrination of students with a communist political orientation as one of its most important objectives.<sup>144</sup> In response to the Party's decision on making productive labour one of the major activities for all schools in 1939, the Deputy-President of this University, Luó Rulqīng, set a productive index for the University, the teaching staff and students to achieve.<sup>145</sup> Moreover, students of the Yánān University were required to take compulsory courses like "Chinese revolutionary history." For both political and economic reasons, students had to allocate 20% of their study time for participation in productive labour in rural areas.<sup>146</sup>

In the Nationalist higher education system, Sūn Yìxiān became a model teacher as Confucius did in classical Chinese higher education. General education for children and youth had to be based on Sūn's teachings.<sup>147</sup> Especially in higher education, the teachings of Sūn Yìxiān and the doctrines of the Chinese Nationalist Party replaced the Confucian Five Classics and Four

Books, and became part of the general education curriculum in 1931.<sup>148</sup> Students were also required to attend the annual commemoration activities for Sūn and revolutionary events.<sup>149</sup>

Like Communist higher education, applied subjects and productive labour were emphasized in the Nationalist curriculum. According to the education regulations of the Nationalist government, to employ applied science as a means to actualize the Three Principles of the People was one of the essential objectives of Nationalist education.<sup>150</sup> The curriculum of science should emphasize the knowledge and techniques of material production. Productive labour was also encouraged as a measure to consolidate students' foundation of people's livelihood. In the name of the improvement of their physical health and self-discipline, military training was imposed on students.<sup>151</sup>

Finally, ideological reinforcement was also imposed on Chinese students who were sent by the Chinese governments to study abroad. The first batch of students sent to the United States by the Qīng Dynasty between 1872 and 1875 were commanded to study Confucian writings, like the Five Classics, the Great Learning and the Classic of Filial Piety.<sup>152</sup> The students were also required to practise Chinese traditional bowing courtesy to their supervisor. In July 1881, most of them were called back to China by the government for reportedly not bowing their heads to the highest official appointed by the Qīng government.<sup>153</sup>

Under the leadership of the Republican government in the 1910s, Chinese overseas students even had to submit their diaries to the Board of

Education of the Republican government for monthly inspection.<sup>154</sup> Later, the Nationalist government also exercised ideological screening of students who pursued overseas training. In 1931, both government-sponsored and self-supported students were required to have a good record of not violating the "Three Principles of the People in speech and deeds" in order to get the permission to study abroad.<sup>155</sup>

To sum up this section, the Chinese state, at various stages during the transitional period, linked transitional Chinese higher education with the Chinese national economy and national survival. Emphasis was put on science and technological education, rather than on literati subjects. Because of a lack of competent resources to develop modern education to cope with national problems, the Chinese authorities opened up the transitional Chinese higher education system to incorporate foreign educational models and resources, and sent students to receive training abroad. Therefore, transitional Chinese higher education reflected a high institutional flexibility to absorb foreign experience.

On the other hand, the Chinese authorities set up institutional defences to reinforce the indoctrination of central value system. The change in the central value system did not break its relationship with transitional Chinese higher education. Rather, the prevailing central value system, once adopted, was kept intact and transmitted to students. Thus, the incorporation of foreign methods and learning did not necessarily mean the synthesis of the domestic central value system and foreign value systems.

## 2.4 SUMMARY AND CONCLUSION

Chapter Two has described the historical contexts of the higher education systems in the PRC and ROC. The chapter has argued that classical Chinese higher education (before the 1840s) was institutionalized in a context in which exposure to foreign influences and the accommodation of domestic non-Confucian traditions (including technical subjects) were limited by the imperial Chinese state. The importation of Western learning into transitional Chinese higher education (between the 1840s and 1940s) also did not necessarily mean the incorporation of Western value systems into the official Chinese value system.

The most obvious crisis was that Republican China (1911 - 1949) still lived in the legacy of the threat of potential attacks by foreign countries. Both the Chinese Nationalist Party and Chinese Communist Party utilized this legacy as a strategy to mobilize their followers to resist, for example, the Japanese invasion in 1937.

Moreover, the political structure in Republican China between the 1910s and 1940s did not tolerate political pluralism, as had Imperial China. Despite Sūn's admiration of the political systems of Western countries,<sup>156</sup> a multi-party system was not institutionalized in the Chinese political structure under the leadership of Sūn and his party, the Chinese Nationalist Party. Rather, the Chinese Nationalist Party competed with the Chinese Communist Party between the 1920s and 1940s by offering their own versions of cultural and political identity for Chinese people. Finally, both parties militarily suppressed each other in the civil wars in the 1940s. As a result, the Chinese Nationalist



Party moved its seat to Taiwan and the Chinese Communist Party successfully brought forth the second social revolution in mainland China in 1949.

As compared with Imperial China and Republican China, the struggles for cultural and political identity in the PRC and ROC after the second revolution in China in 1949 were much more complicated in their uses of strategies ("rejection," "revolution," "supplement" and "synthesis") towards foreign value systems. From 1949, the PRC adopted the "revolutionary" strategy to replace traditional Chinese culture with Marxism and Leninism, and applied them in Chinese contexts. Between 1949 and 1978, the PRC also adopted a "rejection" strategy against all Western values, and treated the US as a chief enemy of the former socialist bloc. From 1978, the Beijing authorities allowed Western economic values (such as market forces) to exist, but still kept the PRC's political system intact. In other words, the PRC still rejects Western political values (such as the concept of loyal opposition). However, the US and the Commonwealth of Independent States (formed by the member states of the former USSR) are both diplomatic friends of the PRC.

Like the Chinese Communist Party in the PRC, the Chinese Nationalist Party transplanted the teachings of Sūn Yǐxiān into Taiwan to replace the Japanese cultural legacy and indigenous Taiwanese cultures in 1945. The ROC ruling elite has attempted to preserve Chinese Confucian values along with the introduction of Western economic values. Western political values were rejected until the lifting of martial law in 1987. However, in the last forty-four years, the ROC also consistently refused any diffusion of communist ideas particularly from the PRC, although the ROC developed non-diplomatic

relations with the PRC from the 1980s for domestic purposes and for the sake of the international recognition of the ROC's political status.

Yet, this is still too simple a description of the contemporary struggles between the preservation of cultural and political identity and economic modernization in the PRC and ROC between 1949 and 1993. The complexity of these struggles underlying the domestic developments and international participation of both countries will be the focus of the next chapters.

### Endnotes for Chapter Two

1. The major teachings of Confucius did not originate with him. Confucius admitted that he was only a faithful oral transmitter of antiquity and not a creator of the tradition. However, he re-interpreted the tradition with his concept of morality, and hence gave new meanings to the antique tradition. Yu-Lan Fung honoured Confucius not only as a transmitter but also as the one who "originated something new" in transmission. See Confucius, *Lùn-yǔ* (The Analects), Book VII.1. For the English translations of these texts, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), pp.63, 86; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), pp.146, 195. See also Yu-lan Fung, *A Short History of Chinese Philosophy*, edited by Derk Bodde (New York: Free Press, 1948), p.41.
2. Hǎiguāng Yān, *Zhōngguó Wénhuà De Zhǎnwàng* (The Prospect of Chinese Culture) (Taipei: Wén Xīng, 1966), Vol.1, pp.1-26.
3. Samuel S. Kim, *China, the United Nations, and the World Order* (Princeton, New Jersey: Princeton University Press, 1979), p.20.
4. Confucius, *Lùn-yǔ* (The Analects), Book III.5. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.69.
5. Asked about whether he could put up with the uncouth ways of the eastern Nine Barbarian Tribes with whom he was intended to settle, Confucius answered that what rudeness would be there if a gentleman dwelt among them. See Confucius, *Lùn-yǔ* (The Analects), Book IX.14. For the English translation, refer to D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.98.
6. Mencius argued that China could use its great doctrines to "change barbarians" but its culture could not be "changed by barbarians." See Mèng-zǐ, *Mèng-zǐ* (The Mencius), Book III, Part I, 4:12. For the English translation, see James Legge, *The Works of Mencius* (New York: Dover, 1979), p.253.
7. Japan was one of the earliest foreign countries which were required to pay tribute to the court of the Chinese emperors in the Later Hàn Dynasty. See Ju-kua Chau, *Chu Fan Chih* (Descriptions of Barbarian Peoples) translated and annotated in Friedrich Hirth and W. W. Rockhill, *Chau Ju-Kua: His Work on the Chinese and Arab Trade in the Twelfth and Thirteenth Centuries, Entitled Chu-fan-chi* (Taipei: Cheng Wen Publishing Company, 1970), pp.161-162.

8. In the same letters to the British King, George III, Chinese Emperor Qián Lóng of the Qīng Dynasty also rejected the proposals of the first British ambassador, Lord McCartney, for extending English trade outside Guangdong in China. The imperial letters are dated 1793 and 1796. The Chinese Emperor also sketched how desirous the British king was of partaking of the benefits of Chinese civilization, how humble the British ambassador was in carrying tribute to China and how gracious the Qīng government was in treating him and his followers. The letters are in Harley F. MacNair, *Modern Chinese History: Selected Readings* (Shanghai: Commercial Press, 1927), pp.1-10.
9. Hàiguāng Yān, *Zhōngguó Wénhuà De Zhǎnwàng* (The Prospect of Chinese Cultures) (Taipei: Wén Xīng, 1966), Vol.1, p.2.
10. Samuel S. Kim, *China, the United Nations, and the World Order* (Princeton, New Jersey: Princeton University Press, 1979), pp.19-21.
11. Immanuel Wallerstein regarded world-empires like the Roman empire and Chinese empire as redistributive. In these empires, there was a stratum of non-producers. The surplus generated by direct producers was pre-empted in the form of tribute paid to the imperial ruling stratum. See Immanuel Wallerstein, "Civilizations and Modes of Production: Conflicts and Convergence," in *The Politics of the World-Economy: The States, the Movements and the Civilizations* (Cambridge: Cambridge University Press, 1984), p.163.
12. Ju-kua Chau, *Chu Fan Chih* (Descriptions of Barbarian Peoples) translated and annotated in Friedrich Hirth and W. W. Rockhill, *Chau Ju-Kua: His Work on the Chinese and Arab Trade in the Twelfth and Thirteenth Centuries, Entitled Chu-fan-chi* (Taipei: Cheng Wen Publishing Company, 1970), pp.166-172.
13. The English translation of the imperial proclamation is in Richard L. Walker (ed.), *China and the West: Cultural Collision, Selected Documents* (New Haven, Connecticut: Far Eastern Publication, Yale University, 1956), p.22.
14. Japanese students came to study in China during the dynasties of Sui (581-618 A.D.) and Táng (618-901 A.D.). In the Táng Dynasty, more than 8,000 students came to China from Korea and another three countries to study the Confucian Five Classics. They also took Chinese civil service examinations. See Zé Zēng, Jiānzǔ Zhāng, and Què Lǐ (eds.), *Zhōngguó Jiàoyùshǐ Jiǎnbiān* (History of China Education) (Jiāngsū: Jiāngsū Education, 1986), p.146. See also Xiū Ōuyáng, *Xīn Táng Shū: Xuǎnjǔ Zhì*, Vol. 44, Part 34. The text by Ōuyáng Xiū is in *Xīn Táng Shū* (Beijing: Zhōnghuá, 1975), Vol.4, p.1163.

15. In 757 A.D., the Japanese emperor decreed that every family should have a Confucian book, the Classic of Filial Piety (Xiàojīng). See Zé Zēng, Jiǎnzuǒ Zhāng, and Què Lǐ (eds.), *Zhōngguó Jiàoyùshǐ Jiǎnbǎn* (History of China Education) (Jiāngsū: Jiāngsū Education, 1986), p.146.
16. Bānghé Shèng, *Nèihé Yu Wàiyuán: Zhōngrì Wénhuàlùn* (Core and Periphery: Chinese and Japanese Cultures) (Shànghǎi: Xuélín Publishing House, 1988), pp.41-43, 76.
17. During the Míng Dynasty in 1431 A.D., Zhèng Hé was commanded by a Chinese emperor to launch his seventh expedition to renew China's contacts with countries in the West and to civilize them. The orders for the voyage indicated that any kings who resisted the "transforming influence" of the Chinese culture would be captured alive, and any violent and plundering brigands exterminated. The military actions would be stopped when "the sea routes were purified and tranquillized, and the natives were enabled quietly to pursue their avocations." See J. J. L. Duyvendak, *China's Discovery of Africa* (London: Probsthain, 1949).
18. Emperor Qián Lóng of the Qīng Dynasty commissioned a punitive expedition to Nepal and forced it to pay tribute to the Qīng empire. The event was mentioned in his letter to the British King, George III, in 1796. The letter is in Harley F. MacNair, *Modern Chinese History: Selected Readings* (Shanghai: Commercial Press, 1927), pp.10-11.
19. High taxation was a measure imposed on foreign traders. An imperial edict issued by Emperor Wén Zōng of the late Táng Dynasty in 834 A.D. judged that the existing mode of taxation was too heavy for foreigners. In order to encourage further trade with foreigners, the decree commanded the viceroys of the provinces in which the foreigners lived to offer consolations to them, and to specify clearly that no additional taxes would be imposed on them except the already fixed anchorage-duties, the court-purchase and the regular presents. The 834 A.D. imperial edict is in Richard L. Walker (ed.), *China and the West: Cultural Collision, Selected Documents* (New Haven, Connecticut: Far Eastern Publication, Yale University, 1956), p.19.
20. The freedom of movement for foreigners, whether from abroad or born in China, was limited. In order to minimize foreign influence, particularly through the smuggling of contraband goods, Emperor Huī Zōng of the Northern Sòng Dynasty issued an edict in A.D. 1104 to spell out a series of control measures: confinement to living and doing trade in designated provinces, passport restrictions from one province to another, and constant inspection throughout the travel. In the Qīng Dynasty, Emperor Qián Lóng admitted in one of his letters to King George III that stricter dynastic regulations were imposed on foreigners. In addition to the strict control over their settlement and travel,

Europeans who served the dynasty in the capital were "never permitted to return home" as admitted by Emperor Qián Lóng. Passports to go to another province or to the capital were granted only after careful examination of the motives for travelling. They would be constantly inspected by the Chinese officers of those provinces through which they passed in their journey. The 1104 imperial edict is in Richard L. Walker (ed.), *China and the West: Cultural Collision, Selected Documents* (New Haven, Connecticut: Far Eastern Publication, Yale University, 1956), p.21. The letters of Emperor Qián Lóng are in Harley F. MacNair, *Modern Chinese History: Selected Readings* (Shanghai: Commercial Press, 1927), pp.1-9.

21. Inter-marriage among foreigners themselves was prohibited in Míng Dynasty lest foreign tribes should increase by a disproportionate number in China. However, they were allowed to marry the Chinese.
22. Foreigners serving in the Chinese court were compelled to adopt Chinese dress and customs. The gesture of kowtow was much resisted by foreigners, but was highly regarded as a gesture to show one's utmost humility to the most supreme emperors in the Qīng Dynasty. To "kowtow" was to knock one's head nine times on the floor in front of the emperor. As indicated in the Chinese imperial edict issued on November 1, 1794, the Dutch envoys had to agree to perform the kowtow ceremony before coming to the court in the capital, Beijing, from Quǎngdōng province. The way for foreigners to survive in ethnocentric China was to play Chinese games with Chinese rules. A Christian missionary correspondent commented that in order to have a better relation with the Chinese government and people, it would be advisable for the missionaries to China to get acquainted with "their spoken language, prejudice, and all the peculiarities of their habits and character." Another account of one of the Dutch envoys recorded that they did actually bow their uncovered heads nine times to the ground. See J. J. L. Duyvendak, "The Last Dutch Embassy to the Court of Peking," *Toung Pao*, No.36 (1935). The account is also in Richard L. Walker (ed.), *China and the West: Cultural Collision, Selected Documents* (New Haven, Connecticut: Far Eastern Publication, Yale University), p.33.
23. Bertrand Russell, *The Problem of China* (Nottingham: Spokesman, 1993), pp.190-191.
24. After being absorbed and adapted to the Chinese context, Buddhism flourished during the Mid-Táng Dynasty (618-907 A.D.). It gradually gained large support from the commoners and some Confucian intellectuals of the state government, and became one of the principal religions in China. It altered the daily life of Chinese to such an extent that the process was called the "indianization of China." See Charles O.

Hucher, *China's Imperial Past: An Introduction to Chinese History and Culture* (London: Duckworth, 1975), p.193.

25. Buddhism developed so successfully during the Táng Dynasty that it directly challenged the official status of Confucianism. The critical Confucian attitude to Buddhism can be best reflected in the objection of the leading scholar, Hán Yù, to the Táng Emperor's plan for a festival for receiving one of the Buddha's bones in 819 A.D. Hán did not think that the prosperity of the nation and the long reign of the rulers in the past dynasties were due to Buddha since Buddha was imported in a much later stage. Rather, he associated Buddha with the shorter reign of some rulers and social disorders in China. He also insisted that Buddha was foreign and a barbarian who had nothing in common in language and dress with China. Hán based his authority in Confucianism by quoting Confucius' saying, "respect Spirits and ghosts, but keep aloof from them." See Xū Liú, *Jiù Táng Shǔ* (History of the Former Táng Dynasty) (Beijing: Zhōnghuá, 1975), Vol.13, Chapter 160, pp.4199-4201. The English translation of Hán's objection can be found in Herbert A. Giles, *A History of Chinese Literature: Prose* (London: Bernard Ruaritch, 2nd ed., 1923), pp.124-128. It is also in Richard L. Walker (ed.), *China and the West: Cultural Collision, Selected Documents* (New Haven, Connecticut: Far Eastern Publication, Yale University, 1956), pp.9-11.
26. The actual proclamation against Buddhism came from the Táng Emperor Wǔ Zōng in 845 A.D. In the proclamation, Buddhism was identified as an evil which caused injury to "public morals" and "the welfare of the people." The Buddhist priests and priestesses were accused of consuming food and clothes without contributing to the production of either. Their monasteries were ordered to be demolished. As mentioned in the same proclamation, 4,600 monasteries had already been destroyed, 40,000 temples and shrines demolished, and 265,000 people renounced their faith. The English version of the proclamation is in Herbert A. Giles, *Gems of Chinese Literature: Prose* (London: Bernard Ruaritch, 2nd ed., 1923), pp.153-154.
27. Kai-fu Tsao, *The Relationship between Scholars and Rulers in Imperial China: A Comparison Between China and the West* (Lanham: University Press of America, 1984), pp.219-220.
28. Leslie Nai-Kwai Lo, "State Patronage of Intellectuals in Chinese Higher Education," *Comparative Education Review*, Vol.35, No.4 (November 1991), pp.690-720.
29. Samuel S. Kim, *China, the United Nations, and the World Order* (Princeton, New Jersey: Princeton University Press, 1979), p.22.
30. Talcott Parsons, *The Social System* (Glencoe, Illinois: The Free Press, 1951), pp.58-67

31. Samuel S. Kim, *China, the United Nations, and the World Order* (Princeton, New Jersey: Princeton University Press, 1979), p.21.
32. This Chinese saying is quoted by Wen-Hsing Wu, Shun-Fen Chen and Chen-Tsou Wu in their article, "The development of higher education in Taiwan," *Higher Education*, Vol.18, No.1 (1989), p.125.
33. Samuel S. Kim, *China, the United Nations, and the World Order* (Princeton, New Jersey: Princeton University Press, 1979), p.21.
34. Leslie Nai-Kwai Lo, "State Patronage of Intellectuals in Chinese Higher Education," *Comparative Education Review*, Vol.35, No.4 (November 1991), p.691.
35. Confucius, *Lùn-yǔ* (The Analects), Book XII.11. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.114; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.256.
36. D. C. Lau translated these two Chinese characters, zhōng shù, respectively into "doing one's best" and "using oneself as a measure to gauge others"; whereas James Legge translated them respectively into "to be true to the principles of our nature" and "the benevolent exercise of them to others." Yu-lan Fung argued that the practice of the principle of zhōng shù was the practice of benevolence (rèn) mentioned in *The Analects*, Book XII.2. Zhōng was a positive aspect of benevolence by doing to others what one wished oneself. Shù was a negative aspect and involved not doing to others what one did not wish others to do to him or her. See Confucius, *Lùn-yǔ* (The Analects), Book IV.15; D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.74; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.170. See also Yu-lan Fung, *A Short History of Chinese Philosophy*, edited by Derk Bodde (New York: Free Press, 1948), p.43.
37. Mencius even spelt out the moral code for each relation: righteousness between the ruler and subject, affection between father and son, attention to their separate functions between husband and wife, a proper order between the old and the young, and fidelity between friends. For the rules of ceremony and demeanour, see *Zhōng Yōng* (The Doctrine of the Mean), Chapter 27.3, and its English translation, in James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.422. For these moral codes, see Mencius, *Mèng-zǐ* (The Mencius), Book III, Part I, Chap.4:12. For the English translation, see James Legge, *The Works of Mencius* (New York: Dover, 1979), p.252.
38. Chiu-Sam Tsang, *Society, Schools & Progress in China* (Oxford: Pergamon, 1968), p.6.



39. Yu-lan Fung, *A Short History of Chinese Philosophy*, edited by Derk Bodde (New York: Free Press, 1948), pp.21-22.
40. John A. Hall and G. John Ikenberry, *The State* (Stony Stratford, Milton Keynes: Open University Press, 1989), p.24.
41. A representative of Legalism was Han Fei-Tzu who died in 233 B.C. Legalism asserted that history is a process of change. This school also upheld that to govern the state properly is to establish law. With law and authority, the leaders can rule their countries through delegation of duties to appropriate people. See Yu-lan Fung, *A Short History of Chinese Philosophy*, edited by Derk Bodde (New York: Free Press, 1948), pp.155-165.
42. Zé Zēng, Jiānzǔ Zhāng, and Què Lǐ (eds.), *Zhōngguó Jiàoyùshǐ Jiǎnbiān* (History of China Education) (Jiāngsū: Jiāngsū Education, 1986), p.74.
43. Dǒng Zhòngshū suggested to the emperor that people did not know how to follow his rule because of the existence of so many schools of thought, and that the subordinates did not know how to obey their superiors because of frequent changes in the law. He, therefore, proposed that all schools of thought, except the six Confucian classics, should be banned and should not be allowed to compete with Confucianism so that people knew how to follow. See Gù Bān, *Hàn Shū* (History of the Former Han Dynasty) (Beijing: Zhōnghuá, 1962), Vol. 8, Chapter 56, pp.2496-2529.
44. Emperor Tài Zǔ of the Sòng Dynasty (960 - 968 A.D.) raised the status of the Confucian-oriented civil service examination, while the emperors Tài Zǔ and Tài Zōng of Qīng Dynasty (1616 - 1644 A.D.) preserved traditional Confucian education and staffed their governments with literati.
45. It should be pointed out that the term, class, used by Confucius referred to the social class of the people. Confucius claimed that he had never rejected anyone who had come for his instruction. Some of his pupils, like Zǐ-zhāng and Zǐ-lù, came from the lower class and later became officials in the court. It was recorded that even rustic people, after receiving education in rites and music, became gentlemen. Confucius' disciples also achieved different educational results: some good in virtuous conduct, some in speech, some in government, and some in culture and learning. Confucius, *Lùn-yǔ* (The Analects), Book VII.7, XI.3, XV.38. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), pp.86, 106, 137; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), pp.197, 237-238, 305.

46. Confucius, on the criteria of intellectual capacity and attitude of learning, classified people into those who were born to be the most intelligent, those who acquired knowledge whether they learned quickly or after overcoming learning difficulties, and the lowest people who were born stupid but did not attempt to learn. See Confucius, *Lùn-yǔ* (The Analects), Book XVI.9. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.140; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.314. See also Ronald F. Price, *Education in Modern China* (London: Routledge & Kegan Paul, 2nd ed., 1979), p.42.
47. Confucius, *Lùn-yǔ* (The Analects), Book XVII.2-3. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.143; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.318.
48. See Mencius, *Mèng-zǐ* (The Mencius), Book VI, Part I, 6:1-7. For the English translation, see James Legge, *The Works of Mencius* (New York: Dover, 1979), pp.401-403.
49. Xún-zǐ, *Xún-zǐ*, Chapter 23. It is in Tàì Zhōng, *Xún Zhù Dìng Bǔ* (Supplementary Notes on the Text and Commentaries of Xún-zǐ) (Shanghai: Commercial Press, 1936), Chapter 23, pp.165-174.
50. Mencius suggested that education could train people to become sages like three traditional sages: Yáo, Shùn and Yǔ. See Mencius, *Mèng-zǐ* (The Mencius), Book VI, Part I, 6:7. For the English translation, see James Legge, *The Works of Mencius* (New York: Dover, 1979), p.403. See also Tàì Zhōng, *Xún Zhù Dìng Bǔ* (Supplementary Notes on the Text and Commentaries of Xún-zǐ) (Shanghai: Commercial Press, 1936), Chapter 23, pp.165-174.
51. Dǒng Zhòngshū harmonized the antithesis by classifying people into three major categories. Dǒng asserted that human nature was either good or evil. The upper class consisted of sages who were born with good nature, while the lower class comprised outcasts who were born with evil nature. These two classes were the minority. The majority were those who were ordinary people and were born with good nature. However, the goodness of people was not fully developed until they received education. See Gù Bǎn, *Hàn Shū* (History of the Former Han Dynasty) (Beijing: Zhōnghuá, 1962), Vol. 8, Chapter 56, pp.2496-2529, particularly p.2501.
52. Zhū-zǐ attempted to harmonize the antithesis with an assertion that people were born with the same good nature, but at the same time with different psychophysical endowments that would determine whether the individual's nature would emerge or remain obscured. In order to improve the psychophysical faculty, people must learn and appreciate

the only moral principle under Heaven. But to understand the essence of the moral principle was the foundation of learning. See Chu Hsi, *Learning to Be a Sage*, translated with a commentary by Daniel K. Gardner (Berkeley: University of California Press, 1990), pp.x, 100-101; and Zhū-zǐ, *Zhū-zǐ* (Conversations of Master Chu), Chapter 8, Sections 2.9, 2.12.

53. Confucius, *Lùn-yǔ* (The Analects), Book IX.28. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.100; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.225.
54. Mencius also assumed that human beings differed from beasts and birds by human possession of the senses of commiseration, shame, modesty and complaisance, and discernment. Education was supposed to make use of these four human senses to trigger the upgrading process of human nature, and to help people fully develop four respective virtues: benevolence, righteousness, propriety, and wisdom. See James Legge, *The Works of Mencius* (New York: Dover, 1979), pp.202-203.
55. Being influenced by Buddhism and basing his educational theory on Dǒng's moral classification of people, Hán Yù sub-divided human nature into five innate moral qualities, and human feelings into seven types, which arose when people made contact with the material world. See Hán Yù, "Yuán Xìng Piān" (Original Human Nature); and Xū Liú, *Jiù Táng Shǔ* (History of the Former Táng Dynasty) (Beijing: Zhōnghuá, 1975), Vol.13, Chapter 160, pp.4195-4204.
56. The methods of self-cultivation were numerous, but they were associated with exercises of self-control in thought, speech and deeds in social contexts. Chen Li-Fu listed twenty-seven Confucian methods of self-cultivation: the setting of the will, the love of goodness, self-requirement, watchfulness over oneself when alone, self-examination, self-censure, the rectification of faults, self-exertion, strengthening oneself, self-confidence, self-gratification, self-control, self-regulation, integrity, keeping to one's due, repose in poverty and joy in the way, the exercise of care in assumption of office and retirement as well as differentiation between quitting and remaining in office, care in social intercourse and in taking and giving, the selection and transformation of environment, the creation of and wait for circumstances, the selection of skills, arts and habits, prudence in speech and conduct, respect for teachers, faithfulness to friends, and loyalty and reciprocity. See Li Fu Chen, *The Confucian Way: a New and Systematic Study of 'The Four Books'* (London: KPI, 1986), pp.265-365.
57. Confucius, *Lùn-yǔ* (The Analects), Book III.3. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin,

- 1979), p.67; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.155.
58. Confucius, *Lùn-yǔ* (The Analects), Book VII.25. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.89; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.202.
  59. The Six Classics edited, annotated or written by Confucius were the Book of Poetry (Shī), the Book of Documents (Shū), the Record of Rites (Lǐ), the Classic of Music (Yuè), the Book of Changes (Yì), and the Spring and Autumn Annals (Chūnqiū). For the functions of these Classics, see "Introduction," in *Lǐ* (The Record of Rites) (n.p.: n.p., n.d.). This book is in the Library of the School of Oriental and African Studies, University of London.
  60. Ruiqing Du, *Chinese Higher Education: A Decade of Reform and Development (1978-1988)* (Basingstoke, Hampshire: MacMillan, 1992), p.2.
  61. Confucius, *Lùn-yǔ* (The Analects), Book XIII.4. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.119; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), pp.264-265.
  62. Mencius, *Mèng-zǐ* (The Mencius), Book III, Part I, Chap.4:6. For the English translation, see James Legge, *The Works of Mencius* (New York: Dover, 1979), pp.249-250.
  63. *Zhōng Yōng* (The Doctrine of the Mean), Chapter 1. For the English translation, see James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.383.
  64. The other two strategies were: to keep the population flourishing, and the nation prosperous. See Confucius, *Lùn-yǔ* (The Analects), Book XIII.9. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.119; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), pp.226-227.
  65. Confucius, *Lùn-yǔ* (The Analects), Book XIV.45. For the English translation, see D. C. Lau, *Confucius: The Analects* (London: Penguin, 1979), p.131; and James Legge, *Confucius: Confucian Analects, The Great Learning & The Doctrine of the Mean* (New York: Dover, 1971), p.292.
  66. *Gù Bǎn, Hàn Shū: Rǔlín Zhuàn* (History of the Former Han Dynasty: Confucian School), Vol. 88, Part 58. It is in *Hàn Shū* (History of the Former Han Dynasty) (Beijing: Zhōnghuá, 1962), Vol.11, p.3594.

67. *Gù Bān, Hàn Shū: Xúnlì Zhuàn* (History of the Former Han Dynasty: Xúnlì), Vol. 89, Part 59. It is in *Hàn Shū* (History of the Former Han Dynasty) (Beijing: Zhōnghuá, 1962), Vol.11, pp.3625-3626.
  
68. China experienced warring chaos in the Three Kingdoms period (220-428 A.D) and the invasions of Mongolians during the Jin Dynasty (265-420 A.D.). The first challenge to classical Chinese higher education took place during the Nán Sòng Dynasty (420-479 A.D.). Owing to the national chaos between 220 - 420 A.D, people, particularly the literati, wished to liberate their thoughts and escape from the harsh reality. They pursued otherworldly mental emancipation, and carefully studied Buddhism and the thought of Lǎo-zǐ in order to find some forms of escape. Metaphysics (Xuánxué) and Humanities (Wénxué) became popular. In 439 A.D., Emperor Sòng established 4 different schools (quǎn) for different kinds of learning: the School of Confucianism (Rúxué Quǎn) for the study of Confucianism, the School of Metaphysics (Xuánxué Quǎn) for the study of Buddhism and Lǎoism, and the School of Humanities (Wénxué Quǎn), and the School of History (Shíxué Quǎn) for the learning of the political history of China. Four years later, the School of Medicine (Yīxué Quǎn) appeared. Unfortunately, the diversification in fields of study quickly disappeared with the downfall of the dynasty in 479 A.D. The second challenge came immediately in the Suí Dynasty (581 - 618 A.D.). The Ministry of Education (Guózǐsì or sometimes called Guózǐjiàn) was set up to take care of administration and teaching affairs. Under the Ministry were three schools for the study of Confucian classics: the School of National Youth (Guózǐxué), the Imperial University (Tàixué), and the School of Four Gates (Sīménxué). Specialized colleges, like the School of Calligraphy (Shūxué) and the School of Mathematics (Suànxué), were also under the supervision of the Ministry. Under another ministry, Dàlǐsì, was the School of Law (Lǔxué). The third challenge was the greatest as compared with the previous two. Emperor Gāo Zǔ (618-627 A.D.) of the Táng Dynasty adopted a pluralistic policy of the revival of Confucianism and at the same time respect for Buddhism and Taoism. For the first challenge, see *Sòng Shū: Léi Cìyú Zhuàn* (History of the Liu Sung Dynasty), Vol.93, Pt.53. It is in *Sòng Shū* (Beijing: Zhōnghuá, 1977), Vol.8, pp.2293-2294. For the second challenge, see Guílín Lǐ (ed.), *Zhōngguó Jiàoyùshǐ* (History of Chinese Education) (Shànghǎi: Shànghǎi Education, 1989), pp.118, 151.
  
69. Xiū Ōuyáng, *Xīn Táng Shū: Bǎiquān Zhì*, Vol. 48, Part 38, pp.16-18. It is in *Xīn Táng Shū* (History of the New Táng Dynasty) (Beijing: Zhōnghuá, 1975), Vol.4, pp.1265-1268.
  
70. The other deputy-minister was responsible for the discipline of students.

71. Xiū Ōuyáng, *Xīn Táng Shū: Bǎiquān Zhì*, Vol. 49B, Part 39B. It is in *Xīn Táng Shū* (History of the New Táng Dynasty) (Beijing: Zhōnghuá, 1975), Vol.4, p.1314.
72. Max Weber, "The Social Psychology of the World Religions," and "The Chinese Literati," *From Max Weber: Essays in Sociology*, edited by H. H. Gerth and C. Wright Mills and with a new preface by Bryan S. Turner (London: Routledge, new ed., 1991), pp.206, 438. See also Leslie Nai-Kwai Lo, "State Patronage of Intellectuals in Chinese Higher Education," *Comparative Education Review*, Vol.35, No.4 (November 1991), pp.690-720.
73. The School of Appreciating Humanities and the School of Promoting Humanities were set aside for children of the emperor's relatives and first-rank officials. Each school had a student quota of 20. See Zhènzhuó Wǔ, *Zhōngguó Dàxué Jiàoyù Fāzhǎnshǐ* (The Development of higher education in China) (Taipei: Sān Mǐn, 2nd ed., 1985), p.96.
74. Although a formal channel to recruit the ablest commoners to serve the government was established, the privilege of aristocratic class was defended. In the imperial system, there were two schools in which commoners could be enrolled. Only extremely capable commoners could study in the School of the Four Gates. Most academically good commoners could study at specialized colleges. The minimum and maximum possible vacancies for commoners in the imperial system were respectively 800 (38.1%) and 910 (43.3%) out of 2210.
75. These two examination systems differed in their ways of selection. The oral system involved the recommendation of people with good moral reputation by local officials, the approval by the state government and, finally, an oral examination by the emperor. The written system required candidates to apply for themselves, and to pass a rudimentary written examination before being appointed as state officials. The written system was intended to displace the subjective appraisal by the oral system with a more objective evaluation of the candidates' ability, and to replace the moral-oriented criterion with the intelligence-based one in the selection process. See Gullín Lǐ (ed.), *Zhōngguó Jiàoyùshǐ* (History of Chinese Education) (Shànghǎi: Shànghǎi Education, 1989), p.123; Zhènzhuó Wǔ, *Zhōngguó Dàxué Jiàoyù Fāzhǎnshǐ* (The Development of higher education in China) (Taipei: Sān Mǐn, 2nd ed., 1985), p.86; and Ichisada Miyazaki, *China's Examination Hell: The Civil Service Examinations of Imperial China* (New York/Tokyo: Weatherhill, 1976), p.111.
76. Wáng intended to restore the traditional method of recruiting officials from schools, and to replace Kējǔ with school education together with regular examinations. The three halls were the Upper Hall (Zhōngshè, 100 students), the Inner Hall (Nèishè, 300 students) and the Outer Hall (Wàishè, 2,000 students). Students were allowed to proceed from the

Outer Hall to the Inner Hall, and then to the Upper Hall only after they had done well in monthly tests and annual examinations. Furthermore, only the brightest graduates of the Upper Hall would be awarded government posts. See Tuōtuō Yuán et al., *Sòng Shǐ: Xuǎnjǔ Zhì* (History of the Song Dynasty), Vol.157, Pt.110. It is in *Sòng Shǐ* (History of the Song Dynasty) (Beijing: Zhōnghuá, 1977), Vol.11, pp.3657, 3660.

77. Throughout the entire implementation period of the plan (1080 - 1086), only one graduate was actually appointed to office through this system. See Thomas H. C. Lee, *Government Education and Examinations in Sung China* (Hong Kong: Chinese University Press, 1985), p.65.
78. *Xīn Táng Shū: Xuǎnjǔ Zhì*, Vol. 44, Part 34. It is in *Xīn Táng Shū* (History of the New Táng Dynasty) (Beijing: Zhōnghuá, 1975), Vol.4, pp.1159-1160.
79. This figure represents the total number of characters (including repeated characters) contained in the *Analects* (11,705), *Mencius* (34,685), the *Book of Changes* (24,107), the *Book of Documents* (25,700), the *Book of Poetry* (39,234), the *Book of Rites* (including *Great Learning* and the *Doctrine of Mean*, 99,010), and *Tso Chuan* (196,845). See Ichisada Miyazaki, *China's Examination Hell: The Civil Service Examinations of Imperial China* (New York/Tokyo: Weatherhill, 1976), p.16.
80. Thomas H. C. Lee, *Government Education and Examinations in Sung China* (Hong Kong: Chinese University Press, 1985), p.9.
81. One of the supplementary textbooks was the *Book of Filial Piety* (Xiàojīng) of the Hàn Dynasty. This book espoused Xún-zǐ's authoritarian form of Confucianism and extolled filial piety as the root of all other virtues. In the Sòng Dynasty, a set of new commentaries on the *Rites of the Zhōu*, the *Book of History* and the *Book of Poetry* was announced by Wáng Ānshí as common textbooks. Later, Zhū-xī's interpretations and his book, *Reflections on Things at Hand*, had also been prescribed by the imperial government as one of the correct interpretations of the classics and as a standard text in education and civil service examinations in the subsequent dynasties of Yuán, Míng and Qīng.
82. *Gù Bǎn, Hàn Shū: Rǔlín Zhuàn* (History of the Former Han Dynasty: Confucian School), Vol. 88, Part 58. It is in *Hàn Shū* (History of the Former Han Dynasty) (Beijing: Zhōnghuá, 1962), Vol.11, p.3598.
83. For a list of examination subjects, see *Xīn Táng Shū: Xuǎnjǔ Zhì*, Vol. 44, Part 34. It is in *Xīn Táng Shū* (History of the New Táng Dynasty) (Beijing: Zhōnghuá, 1975), Vol.4, pp.1159-1160.
84. Thomas H. C. Lee, *Government Education and Examinations in Sung China* (Hong Kong: Chinese University Press, 1985), p.12.

85. Thomas H. C. Lee, *Government Education and Examinations in Sung China* (Hong Kong: Chinese University Press, 1985), p.13.
86. Conrad Schirokauer, "Introduction," in Ichisada Miyazaki, *China's Examination Hell: The Civil Service Examinations of Imperial China* (New York/Tokyo: Weatherhill, 1976), p.8.
87. Joseph R. Levenson, *Confucian China and Its Modern Fate: A Trilogy* (Berkeley, California: University of California Press, 1965), p.109.
88. The first Opium war in 1840 was the first Chinese military combat with the West, and resulted in national humiliation. The defeat forced the Qīng government to sign the Treaty of Nanking consisting of 13 articles on August 29, 1842. An indemnity of \$21 million was made by the Chinese government to the British for military expenses, the destroyed opium, and the repayment of debts of the officially designated "hong" merchants to British traders. Under the Treaty, five ports, including Quǎngdōng, Xiàmén, Fúzhōu, Níngbō and Shànghǎi, were forced to open up for trade and for the residence of British consuls and merchants. The second Opium war begun in 1856 led to another set of treaties of Tiānjīn with the British, the French, the United States, and the former Soviet Union in 1858. Particularly, the treaty with the British included items which broke the Qīng's strict rule limiting foreigners' travel in China. The items included the permanent-residence stipulation, the opening up of ten new ports, freedom to travel in all parts of China with passports issued by the British consul and countersigned by the Chinese authorities, and freedom of movement in all China for both Catholic and Protestant missionaries. Other countries in alliance with Britain shared the same privileges under the British umbrella. See Immanuel C. Y. Hsu, *The Rise of Modern China* (New York: Oxford University Press, 1990), Chapter 8 and pp.210-211.
89. Zōngtáng Zuǒ, *Zǎi Hǎifáng Dàng* (Records of Naval Defence) (n.p.: n.p., n.d.), Part B, Vol. I, p.5. This book is in the Library of the School of Oriental and African Studies, University of London.
90. The edict was issued on September 13, 1898. It is in Harley F. MacNair, *Modern Chinese History* (Shanghai: Commercial Press, 1927), pp.578-580.
91. The edict was issued on June 11, 1898. See *Shàng Yù* (Imperial Edicts), Vol. 418, p.19. For the English translation of the edict, see Meribeth E. Cameron, *The Reform Movement in China* (London: 1931), pp. 36-37.
92. Witnessing the whole development of the First Opium War, Wèi Yuán (1794-1857) also reminded the Chinese that corrupt feudal China should be reformed. He perceived that the powerful tools of Western army were warships, artillery and methods of training soldiers. See Yuán Wèi, "Preface," *Hǎiguó Túzhì* (A Treatise on the Sea Kingdoms) (n.p., 2nd ed., 1852), Vol.1, p.1. His work was the first Chinese work to



assess the "geo-political" expansion of Western countries in maritime Asia and Western pressure on the China coast. For details, see Jane Kate Leonard, *Wei Yuan and China's Rediscovery of the Maritime World* (Cambridge, Massachusetts: Council on East Asian Studies, Harvard University, 1984), pp.118-120.

93. Jack Gray, *Rebellions and Revolutions: China from the 1880s to the 1980s* (Oxford: Oxford University Press, 1990), p.3.
94. In opposing the establishment of the Department of Astronomical Calculation for the improvement of the naval training in Běijīng Language Institute, Wēi Rén, one of the ministers, argued that there was no need to worry about human resources because China was so vast, and hence there was no need to study Western learning or to study under Westerners. In 1875, another minister, Yú Língchén, even warned the emperor that China was facing a crisis of Westernization. He feared that China's traditional rites and virtues would be found worthless and replaced by Western ones. See Zé Zēng, Jiānzǔǒ Zhāng, and Què Lǐ (eds.), *Zhōngguó Jiàoyùshǐ Jiǎnbǎn* (History of China Education) (Jiāngsū: Jiāngsū Education, 1986), p.290.
95. During the movement of the Heavenly Kingdom of Great Peace, the Confucian "Three-Character Classic" was replaced with the Bible in the teaching of children. Civil service examinations were set in plain language rather than in the classical style of writing. Questions were set about the Bible, Christian tracts and Hóng's proclamations, rather than the Confucian Five Classics and Four Books.
96. Fù, an editor of the Bulletin of the Běijīng University, suggested in 1919 that complete acceptance of Western elements was tolerable because Chinese culture was so backward that ninety-nine elements out of one hundred were worse than those of the Western. See Fù's article in *Xīn Cháo* (New Tides), Vol.1, No.3 (March, 1919).
97. Hú Shì was another major proponent of the revolutionary approach. He favoured a wholesale acceptance of Western civilization especially science, technology and democracy, rather than a selective adoption without changing the traditional culture. He also insisted that only modern technological culture had potential for the betterment of human life. Quoting the successful experience of Japan in the wholesale acceptance of modern Western civilization, Hú argued that only the progress of science and industry could provide a favourable environment for the development of a new Chinese national culture. Hú assumed that the physical "law of inertia" of the masses worked in the realm of culture. He argued that leaders need not worry about losing important Chinese values because the majority of people would preserve those traditional elements what were dear to them, and because the response of the masses was much slower in pace. He also

argued that little spirituality could be found in Chinese civilization which had tolerated the foot-binding of women for a thousand years without a protest, and which failed to use human energy and intelligence for the conquest of nature and for the improvement of people's life. Rather, he suggested that science and democracy were both pregnant with highly spiritual potentialities and sought to satisfy the idealistic demands of people. Even purely technological advances were spiritual in the sense that they could create conditions for relieving human suffering, multiplying human power, and liberating the human spirit and energy for the enjoyment of the fruits and values of civilization. Hú's article was translated in Richard L. Walker (ed.), *China and the West: Cultural Collision, Selected Documents* (New Haven, Connecticut: Far Eastern Publication, Yale University), pp.137-141.

98. Emperor Quǎng Xù issued a reform edict on June 11, 1898, and attempted to launch a "Hundred Days Campaign." In the edict, he admitted that "changes must be made to accord with the necessities of the times." He exhorted his officials and people to strive for "higher things" and to develop their country by catching up with Western progress. He also proposed a strategy of guided openness: to preserve the spirit of the morality of sages and wise people, to use it as the basis on which newer and more advantageous foundation could be built, and at the same time to adopt widely Western knowledge which might help China to keep pace with the times. See *Shàng Yù* (Imperial Edicts), Vol. 418, p.19. For the English translation of this edict, see Meribeth E. Cameron, *The Reform Movement in China* (London: 1931), pp. 36-37.
99. To Zhāng, Chinese learning referred to the Confucian moral values framed in a hierarchical society. According to Zhāng, the distinctions between the sovereign and subject, father and son, and husband and wife were of utmost importance to the administration of a society and the rectification of the human mind. One of the ways to save China from foreign invasion was to conserve the Holy Religion, i.e. Confucianism. Western learning referred not only to the technique of manufacturing powerful warships and artillery, but, in a broader sense, Western techniques and Western (educational, economic, and political) systems. Western techniques included mathematics, mining, medicine, acoustics, chemistry and electricity. Western systems were those of schools, taxation, legislation, commerce, and politics. These Western systems were more important than Western techniques in saving China.

Most important of all, Zhāng considered that "Chinese values" were moral and concerned with moral conduct, and that "Western applications" were practical and concerned with the affairs of the world. From this presupposition, he prioritized the sequence of educational changes for China: "Western learning should be preceded by Chinese learning." The guideline for any change in a school or an institute was that the teaching "must be rooted in filiality [to parents] and loyalty [to

the emperor], based on Chinese classical and historical writings so as to rectify students, and then uses Western learning to consolidate their knowledge and to train their techniques."

See Zhǐdòng Zhāng, *Quànxué Piān* (Exhortation to Learning), 1898. It was translated by Samuel L. Woodbridge in *China's Only Hope: An Appeal by Her Greatest Viceroy* (Edinburgh and London: Olipant, Anderson & Ferrier, 1901).

100. Liáng Qǐchāo realized that there were moral values deeply rooted in Western learning, and proposed that Chinese learning and Western learning could be synthesized in Chinese education so that students could acquire both for the sake of the material and spiritual construction of China. However, Liáng Qǐchāo and Yán Fù argued that morality was the foundation of nationality and that the standard of morality depended upon religion. They further extended their argument to the concept of the government of Republican China. They suggested that the whole basis of the republican form of government was a moral one, and the basis of Chinese morality was Confucianism. Quoting England and the United States as examples of adopting Christianity as their national religion, they proposed to adopt Confucianism as the national religion. Liáng Qǐchāo and et al., *National Review* (Shanghai), Vol.14, pp.392-393. It is also in Richard L. Walker (ed.), *China and the West: Cultural Collision, Selected Documents* (New Haven, Connecticut: Far Eastern Publication, Yale University, 1956), pp.135-137.
101. Realizing the integrity and uniqueness of each culture, Cài suggested selecting those Western elements which could be assimilated to form part of the Chinese culture. Despite his rejection of the five hierarchical relations of the Confucian tradition, he attempted to equate three Confucian values – righteousness (yì); reciprocity (shù); and benevolence (jén) – respectively to French revolutionary spirit of liberty, equality, and fraternity. The 1912 education policy of the Republican China also reflected Cài's attempt to link Chinese education with Western education. According to Cài, education should "emphasize ethical education, supplemented with utilitarian education and military education, and completed with aesthetic education." To Cài, national military education aimed at the strengthening of national defence and the prevention of the dominance of domestic military powers; utilitarian education aimed at the raising of the material and technological level of the nation for the furtherance of prosperity; and ethical education aimed at the provision of a moral basis for society and the inculcating in the people the moral standards for the establishment of a law-abiding society.

Later, Cài attempted to relate Republican Chinese education with the six arts of classical education of the Zhou Dynasty (c. 11th C. - 256

B.C.) and Western education. Cài argued that in Republican Chinese education, ethical education was inherited from the studies of rites in the Zhou Dynasty. He further suggested that utilitarian education in Republican Chinese education was a synthesis of the writing and numbers in the Zhou Dynasty and utilitarianism of John Dewey and Wilhelm von Humboldt; militarism education, archery and charioteering in the Zhou Dynasty and Greek gymnastics; aesthetic education, music of the Zhou Dynasty and European aesthetics.

For Cài's equation of some Confucian values to Western values, see William J. Duiker, *Ts'ai Yüan-p'ei: Educator of Modern China* (University Park and London: The Pennsylvania State University Press, 1977), pp.45-46. For the 1912 education policy, see Ēnróng Sòng, and Xián Zhāng (eds.), *Zhōnghuámínguó Jiàoyù Fǎguī Xuǎnbiān, 1912 - 1949* (Selection of Education Acts of Republic of China, 1912 - 1949) (Jiāngsū: Jiāngsū Education, 1990), p.1. For how Cài related Republican education to the learning in the Zhou Dynasty and Western education, see his book, *Cài Yuánpéi Quǎnjí: Zhèxuè, Jiàoyù* (Selected Works of Cài Yuánpéi) (Taipei: Wén Xīng, 1967), pp.93-95.

102. Tóngwén Quǎn was intended to be a college for joint instruction in Western and Chinese languages. It was known to foreigners alternately as the Interpreters College or the College of Foreign Languages. Later, it became a comprehensive college after the introduction of astronomy and mathematics into its curriculum in 1866. It was later incorporated into the Beijing Imperial University in 1902.
103. The technical and engineering colleges included the Fúzhōu Maritime Administration College (1866), the Shànghǎi Engineering College (1867), the Tiānjīn Communication College (1879), the Tiānjīn Medical College (1881) and the Húběi Mining College.
104. The proposal of the Capital University Academy Regulation (Jīngshī Dàxuétáng Zhāngchéng) is in *Zhōnghuámínguó Kāiguó Wúshínián Wénxiàn: Gémìng Yuánliú Yu Gémìng Yùndòng – Qīng Tíng Zhī Gǎigé Yu Fǎndòng* (Collection of Materials on the Origins of the Chinese Republic: Origins and Movement of Revolution – Reformation and Rebellion Movements in Qīng Dynasty, First Series, Vol.8B) (Taipei: Cheng Chung, 1966), pp.308-310.
105. The Zòudìng Xuétáng Zhāngchéng was replaced quickly in 1903 owing to political disagreement between the Manchu and Han officials over how to handle the higher education system. However, the new Imperial University Academy Regulation (Qīndìng Xuétáng Zhāngchéng) reflected the same spirit and the content of the previous one. The Zòudìng Xuétáng Zhāngchéng is in *Zhōnghuámínguó Kāiguó Wúshínián Wénxiàn: Gémìng Yuánliú Yu Gémìng Yùndòng – Qīng Tíng Zhī Gǎigé Yu Fǎndòng* (Collection of Materials on the Origins of the Chinese

Republic: Origins and Movement of Revolution -- Reformation and Rebellion Movements in Qing Dynasty, First Series, Vol.8B) (Taipei: Cheng Chung, 1966), pp.320-322.

106. The Decree is in Ēnróng Sòng, and Xián Zhāng (eds.), *Zhōnghuámínguó Jiàoyù Fǎguī Xuǎnbiān*, 1912 - 1949 (Selection of Education Acts of Republic of China, 1912 - 1949) (Jiāngsū: Jiāngsū Education, 1990), pp.402-404.
107. *Zhōnghuámínguó Kāiguó Wúshínián Wénxiàn: Géming Yuánliú Yu Géming Yùndòng -- Qīng Tíng Zhī Gǎigé Yu Fǎndòng* (Collection of Materials on the Origins of the Chinese Republic: Origins and Movement of Revolution -- Reformation and Rebellion Movements in Qing Dynasty, First Series, Vol.8B) (Taipei: Cheng Chung, 1966), p.321.
108. See Article 1 of the University Decree which was issued on October 24, 1912. The Decree is in Ēnróng Sòng, and Xián Zhāng (eds.), *Zhōnghuámínguó Jiàoyù Fǎguī Xuǎnbiān*, 1912 - 1949 (Selection of Education Acts of Republic of China, 1912 - 1949) (Jiāngsū: Jiāngsū Education, 1990), pp.402-404.
109. Ruiqing Du, *Chinese Higher Education: A Decade of Reform and Development (1978-1988)* (Basingstoke, Hampshire: MacMillan, 1992), p.4.
110. Ruth Hayhoe, *China's Universities and the Open Door* (London: M. E. Sharpe, 1989), pp.4-5.
111. The degree concept was first borrowed from Western countries under the decree of the President Yuán Shìkǎi in February 1915. The degree conferment system was re-introduced in May 1935. In this system, there were 3 levels of degrees: bachelor, master and doctor. See Outlines of Designated Education (1915) and Method of Degree Conferment (1935) in Ēnróng Sòng, and Xián Zhāng (eds.), *Zhōnghuámínguó Jiàoyù Fǎguī Xuǎnbiān*, 1912 - 1949 (Selection of Education Acts of Republic of China, 1912 - 1949) (Jiāngsū: Jiāngsū Education, 1990), pp.30-41, 423-425.
112. The St. John University was established in Shànghǎi by the American Anglican Church in 1845. Then came the Wénhuì Quǎn supported by the American Presbyterian Church in Shāndōng in 1864, and the Quǎngdé Quǎn by the English Baptist Church in Qīngzhōu in 1866. There were other colleges like Huìwén College (1888) and Lùhé College in Peking (1893). They were later combined to form the Yǎnjīng University in 1919. Besides, a Catholic university, the Zhèndàn University, was set up in 1903.
113. Zé Zēng, Jiānzǔ Zhāng, and Què Lǐ (eds.), *Zhōngguó Jiàoyùshǐ Jiǎnbiān* (History of China Education) (Jiāngsū: Jiāngsū Education, 1986), p.362.

114. The public universities were Běijīng University by the central authorities, and Shānxī University and Běiyáng University by the provincial authorities. The private universities were the Wǔchāng Zhōnghuá University (1912) and the Běijīng Zhōngguó University (1913), the Zhāoyáng University (1913), the University section of the Tiānjīn Nánkāi School (1919) and the Xiàmén University (1921).
115. Bāng-Zhèng Sūn, *60 Niánlái De Zhōngguó Jiàoyù* (China Education in the Past 60 years) (Taipei: Cheng Chung, 1971), p.407; see also Ministry of Education, *Dìsìcè Zhōnghuámínguó Jiàoyù Niánjiàn (Shàng)* (Fourth Education Yearbook of Republic of China) (Taipei: Cheng Chung, 1976), Vol.1., p.703.
116. The other five subjects were law, commerce, medicine, agriculture, and engineering.
117. See Article 1 of the 1929 "University Regulation." The Regulation is collected in Ēnróng Sòng, and Xián Zhāng (eds.), *Zhōnghuámínguó Jiàoyù Fǎguī Xuǎnbiān, 1912 - 1949* (Selection of Education Acts of Republic of China, 1912 - 1949) (Jiāngsū: Jiāngsū Education, 1990), pp.405-408.
118. See Article 2 of the University Act promulgated by the Ministry of Education of Republican China on 24 October, 1912. The Act is in Ēnróng Sòng, and Xián Zhāng (eds.), *Zhōnghuámínguó Jiàoyù Fǎguī Xuǎnbiān, 1912 - 1949* (Selection of Education Acts of Republic of China, 1912 - 1949) (Jiāngsū: Jiāngsū Education, 1990), pp.402-404.
119. See Article 2 of the 1929 "University Regulation." The Regulation is in Ēnróng Sòng, and Xián Zhāng (eds.), *Zhōnghuámínguó Jiàoyù Fǎguī Xuǎnbiān, 1912 - 1949* (Selection of Education Acts of Republic of China, 1912 - 1949) (Jiāngsū: Jiāngsū Education, 1990), pp.405-408.
120. Zhītíng Wāng, *Táiwān Jiàoyù Shǐliào Xīnbiān* (The History of Education in Taiwan: a New Collection) (Taipei: Commercial Press, 1978), p.126.
121. Ibid., p.160.
122. Ibid., p.126.
123. Ibid., pp.150, 153.
124. At the start of the Běijīng Language Institute, one English and one French missionary as well as a Russian interpreter at the legation were invited to teach their respective tongues. Later, a German teacher joined the teaching team. Instruction of Chinese was also given by Professor Hsu Shu-lin. In 1864, the American educator W. A. P. Martin joined the staff as Professor of English, and later was appointed as the President in 1869. In 1879 the enrolment stood at 163, with 38 specializing in English, 25 in French, 15 in Russian, 10 in German, 33 in

- mathematics, 6 in astronomy, 7 in physics, 9 in international law, 12 in chemistry, and 8 in physiology. See W. A. P. Martin, *Calendar of Tóngwén College* (Beijing: 1879), p.10. A short summary of the development of Tóngwén Quǎn can be found in Immanuel C. Y. Hsu, *The Rise of Modern China* (New York: Oxford University Press, 1990), pp.270-271.
125. *The Educational Directory of China, 1917* (Shanghai: Edward Evans & Sons, 1917; reprinted by Taipei: Cheng Wen, 1973), p.4.
  126. Lihè Qú, *Qīngmò Liúxué Jiàoyù* (Overseas Education in the Qing Dynasty) (Taipei: Sān Mǐn, 1973), p.76.
  127. The names of these 120 pupils and their subjects can be found in *Zhōnghuámínguó Kāiguó Wǔshínián Wénxiàn: Géming Yuánliú Yu Géming Yùndòng -- Qīng Tíng Zhī Gǎigé Yu Fǎndòng* (Collection of Materials on the Origins of the Chinese Republic: Origins and Movement of Revolution -- Reformation and Rebellion Movements in the Qīng Dynasty, First Series, Vol.8B) (Taipei: Cheng Chung, 1966), pp.229-236. See also Lihè Qú, *Qīngmò Liúxué Jiàoyù* (Overseas Education in the Qing Dynasty) (Taipei: Sān Mǐn, 1973), pp.77-78.
  128. *Zhōnghuámínguó Kāiguó Wǔshínián Wénxiàn: Géming Yuánliú Yu Géming Yùndòng -- Qīng Tíng Zhī Gǎigé Yu Fǎndòng* (Collection of Materials on the Origins of the Chinese Republic: Origins and Movement of Revolution -- Reformation and Rebellion Movements in the Qīng Dynasty, First Series, Vol.8B) (Taipei: Cheng Chung, 1966), pp.237-245.
  129. The proposal is in *Zhōnghuámínguó Kāiguó Wǔshínián Wénxiàn: Géming Yuánliú Yu Géming Yùndòng -- Qīng Tíng Zhī Gǎigé Yu Fǎndòng* (Collection of Materials on the Origins of the Chinese Republic: Origins and Movement of Revolution -- Reformation and Rebellion Movements in the Qīng Dynasty, First Series, Vol.8B) (Taipei: Cheng Chung, 1966), pp.262-263, 266.
  130. See Chiu-Sam Tsang, *Society, Schools & Progress in China* (Oxford: Pergamon, 1968), p.16.
  131. Section I.1 of the "Regulations for Sending Students Abroad" which were issued by the Ministry of Education of the Republican government in 1916. The "Regulations" are in *The Educational Directory of China, 1917* (Shanghai: Edward Evans & Sons, 1917; reprinted by Taipei: Cheng Wen, 1973), pp.107-112.
  132. The students had to take tests in the National Language (Chinese) and in one foreign language in both the provincial and state examinations. A general knowledge test and an oral test would also be given in the state examinations. See Section II of the Directive which is in *The Educational Directory of China, 1917* (Shanghai: Edward Evans & Sons,

- 1917; reprinted by Taipei: Cheng Wen, 1973), pp.107-112.
133. Sānjǐng Chén (ed.), *Qíngōng Jiǎnxué Yùndòng* (Movement of Education through Industry and Thrift) (Taipei: Cheng Chung, 1981), p.25.
  134. Sānjǐng Chén (ed.), *Qíngōng Jiǎnxué Yùndòng* (Movement of Education through Industry and Thrift) (Taipei: Cheng Chung, 1981), pp.578, 589.
  135. The policy was spelt out in the circular issued by the Ministry of Education of the Republican government on January 16, 1929. It is in Ēnróng Sòng, and Xián Zhāng (eds.), *Jiàoyù Fǎlìng Xuǎnbiān, 1912 - 1949* (Selection of Education Acts of the Republic of China) (Jiāngsū: Jiāngsū Education, 1990), p.651.
  136. The objectives and measures for permitting students to study abroad were set out in Chapter 8 of the "Principles of Implementing the Education of the Three People's Principles" which were passed at the 17th Administrative meeting of the Central Executive Committee and promulgated on September 3, 1931. Articles 8.1.2-3 particularly concerned the relation between overseas study and national construction. The "Principles" are in Legislative Yuan (eds.), *Zhōnghuámínguó Fǎguī Xuǎnbiān* (Selection of the Acts of the Republic of China) (Beijing: Legislative Yuan, 1944), Vol. 6, particularly p.20.
  137. Zhǐtíng Wǎng, *Táiwān Jiàoyù Shǐliào Xīnbiān* (The History of Education in Taiwan: a New Collection) (Taipei: Commercial Press, 1978), pp.150, 153.
  138. Zhǐtíng Wǎng, *Táiwān Jiàoyù Shǐliào Xīnbiān* (The History of Education in Taiwan: a New Collection) (Taipei: Commercial Press, 1978), p.157.
  139. Y. T. Tsur, "Preface," in *Who's Who of American Returned Students, 1917* (Peking: Tsing Hua College, 1917), pp.i-ii.
  140. In 1906, the imperial government issued its first education policy with an emphasis on keeping the dominance of the Confucian value system in Chinese higher education. See Zhènzhuó Wǔ, *Zhōngguó Dàxué Jiàoyù Fāzhǎnshǐ* (The Development of higher education in China) (Taipei: Sān Mǐn, 2nd ed., 1985), p.159.
  141. Bāng-Zhèng Sūn, *60 Niánlái De Zhōngguó Jiàoyù* (China Education in the Past 60 years) (Taipei: Cheng Chung, 1971), p.431.
  142. The former name of the Shànghǎi University was the Dōngnán Higher Teachers Training School. The principal task of the university was to train cadres of social sciences and humanities.
  143. Unfortunately, the Húnán Self-study University was banned quickly and Máo Zédōng was denounced by the warlord of Húnán in 1923. See



the "Organization of Húnán Self-study University," *Xīnshídài* Vol. 1 (1923). Also see Guílín Lǐ (ed.), *Zhōngguó Jiàoyùshǐ* (History of Chinese Education) (Shànghǎi: Shànghǎi Education, 1989), p.403.

144. The Anti-Japan Military and Political University (AJMPU) was established in 1936 to train military and political cadres to save China from Japanese assaults. The other two objectives were to establish correct attitudes to work, and to master skillfully military strategies. The importance of the Anti-Japan Military and Political University was reflected in its administrative structure. In the early stages, Máo Zédōng was the chairman of the university administrative council, and Lín Biāo was the principal. However, the academic admission requirements were fairly low. Primary graduates were accepted in 1937. Later, experience of the development of the AJMPU became the blueprint for other communist universities in China. In 1941, the authorities of the AJMPU pointed out that university education emphasized elitist education, the integration of theory with practice, the indigenization and popularization of education, and revolutionary and critical education. See Jìzhōng Wǔ, Qínhuá Hè and Guǐxiāng Liú, *Yánān Kàngdà* (The Anti-Japan Military and Political University of Yánān) (Beijing: Wénwù, 1985), pp.4-5, 20, 23.
145. The productive index for the whole university in 1939 was to cultivate 20,000 acres of farm land, and to produce 330,000 litres of rice. See Jìzhōng Wǔ, Qínhuá Hè and Guǐxiāng Liú, *Yánān Kàngdà* (The Anti-Japan Military and Political University of Yánān) (Beijing: Wénwù, 1985), p.35.
146. The Yánān University was a comprehensive institute established for the training of high-rank cadres. It consisted of 3 faculties: Administration, Science, and Humanities. These three faculties were further divided into 10 departments. Under the Administration Faculty were departments of administration, judicial affairs, finance, and education. Under the Science Faculty were departments of engineering, agriculture, and chemistry. Under the Humanities Faculty were departments of music, art, and literature. See Central Research Institute of Educational Science (ed.), *Lǎo Jiěfàngqū Jiàoyù Cānkǎo Zīliào* (A Collection of Education Reference Materials for the Old Liberation Region) (Beijing: Educational Science Press, 1986), p.119.
147. The 1929 "Directive Concerning the Educational Policy and its Implementation in the Republic of China" is in Ēnróng Sòng, and Xián Zhāng (eds.), *Zhōnghuámínguó Jiàoyù Fǎguī Xuǎnbiān, 1912 - 1949* (Selection of Education Acts of Republic of China, 1912 - 1949) (Jiāngsū: Jiāngsū Education, 1990), pp.45-46.
148. See Article 3.2.1 of the "Principles of Implementing the Education of the Three People's Principles." The "Principles" are in Legislative Yuan

(eds.), *Zhōnghuámínguó Fǎguī Xuǎnbiān* (Selection of the Acts of Republic of China) (Beijing: Legislative Yuan, 1944), Vol. 6, pp.8-20.

149. See Article 3.2.2.9 of the 1931 "Principles of Implementing Education on the Three People's Principles," op. cit.
150. Chapter 3 of the "Principles of Implementing Education on the Three People's Principles" was completely devoted to higher education. The importance of applied science in Nationalist higher education was reflected by its special position in the first article of Chapter 3. The next three objectives were: schools should develop their academic function and become cultural centers; the curriculum should depend on the needs of national construction; and the students' discipline should help them develop into rounded persons of morality, intelligence, physical health, community life, and aesthetics. See the 1931 "Principles," op. cit.
151. See Section 2 of Chapter 3 of the "Principles of Implementing Education on the Three People's Principles," op. cit.
152. *Zhōnghuámínguó Kāiguó Wǔshínián Wénxiàn: Géming Yuánliú Yu Géming Yùndòng – Qīng Tíng Zhī Gǎigé Yu Fǎndòng* (Collection of Materials on the Origins of the Chinese Republic: Origins and Movement of Revolution – Reformation and Rebellion Movements in Qīng Dynasty, First Series, Vol.8B) (Taipei: Cheng Chung, 1966), p.223.
153. Zé Zēng, Jiānzǔ Zhāng, and Què Lǐ (eds.), *Zhōngguó Jiàoyùshǐ Jiǎnbiān* (History of China Education) (Jiāngsū: Jiāngsū Education, 1986), p.288.
154. See Section VII of the Directive which is in *The Educational Directory of China, 1917* (Shanghai: Edward Evans & Sons, 1917; reprinted by Taipei: Cheng Wen, 1973), pp.107-112.
155. Articles 8.2.1 and 8.2.2 of the 1931 "Principles of Implementing the Education of the Three People's Principles," op. cit.
156. Wolfgang Franke, *A Century of Chinese Revolution, 1851-1949*, translated by Stanley Rudman, (Oxford: Basil Blackwell, 1970), pp.121-122.

## **CHAPTER THREE**

### **CONTEMPORARY CONTEXTS OF HIGHER EDUCATION IN THE PRC AND ROC: DOMESTIC AND INTERNATIONAL**

#### **3.1 PURPOSE AND ARGUMENT**

The purpose of this chapter is to describe the contemporary contexts in which the higher education systems of the PRC and ROC have been institutionalized since 1949. The chapter highlights the social construction of the state-supported central value systems in both countries, their domestic and international relations, and the emergence of contradictions in these two areas.

This chapter presents the second part of the main argument of the thesis: The tension between the selective rejection of foreign values (which were deemed challenging to the central value system by the respective Chinese political leaders) and the establishment of external links with foreign countries in (the higher education systems of) the PRC and ROC has been framed domestically by their national economic and socio-political priorities; and, at the same time, internationally by their cultural, political and economic relations with other countries since 1949.

The line of argument in this chapter is as follows. The domestic relations (between the ruling party, state, people, and economy) and international relations of the PRC and ROC have undergone two major transformations in the last forty-four years: first and secondary. The "first" transformation of the PRC or ROC refers to its total redefinition of domestic and international relations, and to the creation of social structures in the 1950s

(the founding period of the PRC and ROC). "Secondary" transformation refers to the partial and supplementary revision of these relations and associated structures after the 1970s (during which the US switched its diplomatic relations from the ROC to PRC).

This chapter is, therefore, broadly organized as a survey of the domestic relations between the ruling party, state, people and economy in the PRC and ROC, and their international relations between 1949 and 1993. These two broad categories are chosen to test the argument of this chapter.

In particular, domestic relations are selected because their institutionalization in economic and socio-political structures indicates the type of domestic economic and political values and interests of the political leaders in a country. International relations are chosen firstly because they indicate a country's choice of foreign partners in economic and political arenas; and secondly because a change in international relations of a country, this thesis asserts, may cause a change in related domestic social structures.

Each broad category (domestic or international relations) is further divided into first transformation, contradictions and secondary transformation. "First" transformation of the PRC and ROC is chosen because these processes of change, as defined in this thesis, represented the total redefinition of relations and structures, and therefore can serve a reference point for the study of subsequent transformations. "Secondary" transformation is selected because an analysis of the domestic and international relations in the PRC and ROC shows the areas they would or would not change under the new interplay of domestic and international influences. "Contradiction" is used as a concept

firstly because the developments of domestic and international relations in the PRC and ROC were not linear, but were under the influences of contending forces (e.g. between domestic and international; and between domestic economic and domestic socio-political); and secondly because the handling of contradictions by the respective Chinese ruling elites reflected their preference and interests in the formulation of national policies towards their people and foreign countries.

This thesis will discuss the domestic and international relations of the PRC and ROC in sequence. It should be pointed out that in spite of the separate discussions of these two levels of influences in this chapter, the adjustments in internal and external relations of the PRC and ROC were an interplay of domestic and international influences.

### **3.2 DOMESTIC RELATIONS OF THE PRC AND ROC: THE FIRST SOCIAL TRANSFORMATION**

This section describes the central value systems, socio-political and economic structures, and the methods used to institutionalize the central value systems in the PRC and ROC, particularly before the 1980s.

This section argues that after assuming powers in the 1950s, the ruling elites of the PRC and ROC redefined the relations between the ruling party, state, people and economy to provide moral grounds for the legitimization<sup>1</sup> of their leadership. These redefined relations in both countries were developed through the social construction of the respective central value systems.

These newly redefined relations were institutionalized in political and social structures so as to consolidate the leadership of the ruling elites. In

order to maintain their political leadership, the ruling elites of the PRC and ROC used four methods of national mobilization to create social and political cohesion amongst people: the provision of a common vision; the specification of external opposition forces; the transmission of the official value system and the suppression of opposing value systems; and social control.

### **3.2.1 The State-supported Central Value Systems and Basic Social Structures in the PRC and ROC**

In the early 1950s, the political leaders in the PRC and ROC resisted the formation of a "homogenous world," and carefully constructed their own central value systems to provide a moral mandate to govern their people. In the PRC, the Chinese Communist Party (CCP) under the leadership of Máo Zédōng attempted to replace Confucianism with Chinese socialism, adapted from German Marxism and Soviet Leninism, in mainland China in 1949. Chinese socialism was officially adopted in the "Common Programme" (which served as a national constitution until 1954) as the central value system from 1949.<sup>2</sup> The climax of Máo's breaking away from the Confucian past took place in the early stage of the Cultural Revolution (1966-1976).

Like the CCP in the early 1950s, Jiǎng Jièshí and the Chinese Nationalist Party (CNP) transplanted the Three People's Principles of Sūn Yīxiān (Nationalism, Mínzú; Democracy, Mínguán; and People's Livelihood, Mínhēng)<sup>3</sup> from mainland China to Taiwan after the conclusion of Japanese rule in 1945; as Jiǎng had invoked those Principles at the constitutional level in mainland China in December 1946.<sup>4</sup> Jiǎng also declared the political claims of the CNP about its leadership over the "people" in Taiwan in 1949. The

"people" consisted of a majority of local-born Chinese (about 6 million) in Taiwan which had been ruled by Japan for 51 years (1885-1945), and a minority of mainlanders (about 1.2 million) who moved with the CNP from mainland China and settled in Taiwan between 1949 and 1950.<sup>5</sup> Jiǎng claimed that the government under the leadership of the CNP represented the sole legitimate government of "all China" (including Taiwan, and mainland China) in the international community, and that Taiwan was only a province of the ROC.<sup>6</sup>

The political and state structures of the PRC and ROC were marked by extensive party networks penetrating almost all aspects of the government and people; and by the concentration of power in the hands of few political leaders.

The PRC, according to its constitution, is a "socialist state under the people's democratic dictatorship," and its basic system is "socialist."<sup>7</sup> Within the political system of the PRC, the relations between the CCP, the state and the people were defined through the concept of "democratic centralism." The CCP, according to the PRC's constitution, is "the core of leadership of the whole Chinese people"<sup>8</sup> and gains its power to rule from the people through the National People's Congress which is supposedly the highest political organization.<sup>9</sup> The CCP is organized hierarchically from the Politburo headed by the Secretary-General in the capital, down to the party organizations at the levels of province, municipality, county, and basic production and service units.<sup>10, 11</sup> Parallel to the CCP is the state hierarchy which extends from the central State Council headed by the Premier to state organs at every level. All

state organs are responsible for administration and are under the "unified leadership of the central authorities."<sup>12</sup>

The ROC, according to the constitution, is a "democratic republic of people." Its socio-political structure was developed partly from Sūn's Principle of Democracy<sup>13</sup> which depicted the relationships between the ruling party, the state and the people in the ROC. The CNP, following Sūn's idea of 5 state powers (judiciary, legislature, executive, examination and control) established a central government comprising 5 state administration institutions; and each of them exercises one of these powers.<sup>14</sup> However, the CNP suspended 4 people's rights advocated by Sūn (election and removal of central government officials, and initiation and revision of laws produced by the central government) at the national level between 1949 and 1987. As in the PRC, the political power was concentrated in the Central Standing Committee of the CNP. Party cells and branches were established in almost all levels of the government, the judiciary, and the armed forces.<sup>15</sup>

Common to the political structures in the PRC and ROC was the domination of the respective small groups of political leaders -- ruling elites<sup>16</sup> -- those who hold strategically influential positions of the highest echelon in the national political structure, and who have institutional powers to make decisions about national policies and to enforce the implementation of these policies. Specifically, members of the Politburo, particularly the Secretary-General, President, and Premier, are ruling elite members in the PRC; and members of the Central Committee of the CNP including the Party Chairman, President and Premier are members of the ruling elite in the ROC. Amongst



these ruling elites in the PRC and ROC, there were charismatic leaders who dominated the political arenas: for example, Máo Zédōng (1949-1976) and Dèng Xiǎopíng (after 1978) in the PRC, and Jiǎng Jièshí (1949-1975) and Jiǎng Jīngguó (1978-1988) in the ROC.

However, the PRC and ROC differed in their economic structures. The economy of the PRC, as spelt out in the 1949 "Common Programme," was characterized by the state ownership of much property, planning by the central government, and the subordination of the private sector to the state.<sup>17</sup> In the 1993 revised constitution, the PRC authorities under Dèng Xiǎopíng's leadership still stressed the primacy of public ownership, but at the same time permitted market mechanisms to operate within the socialist framework.<sup>18</sup>

In contrast to the PRC, the (planned) economy of the ROC emphasized market forces. The CNP, unlike the CCP in the PRC, does not interfere with the economic policies initiated by the state.<sup>19</sup> Public utilities and enterprises of a monopolistic nature are under government operation. Private wealth and enterprises are permitted by the state as long as they are not "deemed detrimental to a balanced development of national wealth and people's livelihood."<sup>20</sup> The Principle of Livelihood, according to the ROC economist, Li Kwoh-ting, makes the ROC economy "neither a capitalist system nor a communist one."<sup>21</sup>

Unlike the CCP, the CNP has allowed state technocrats (like scientists and engineers) who have technical knowledge and political power to have almost full autonomy in the financial and economic sectors since the 1950s.<sup>22</sup> Like the imperial Chinese government, civil servant examinations are used to

select public functionaries in the ROC. Constitutionally, no one can be appointed to public offices unless they pass state qualification examinations. Also, practice in specialized professions is permitted only after they pass state professional examinations.<sup>23</sup> According to Péng Huáisi, the proportion of technocrats in the state cabinet increased to two-thirds in 1984.<sup>24</sup> Nevertheless, these technocrats administered the ROC in accordance with the constitution which was based on the Three People's Principles. As indicated in their reports, these state officials frequently claimed that they used these principles as guidelines in their formulation of state policies.

In sum, the CCP and CNP justified the legitimacy of their political leadership on moral bases by constructing a new central value system; and redefined and institutionalized the domestic relations between the party, the state, the people and the economy in new social structures. However, to consolidate and maintain their ruler, the ruling elites of the PRC and ROC, it will be suggested in the next section, maintained their respective central value systems by means of persuasion and coercion so as to make people to observe the newly defined social norms.

### **3.2.2 National Mobilization and the First Social Transformation in the PRC and ROC**

This section describes the methods used by the ruling elites of the PRC and ROC to transmit the revolutionary patterns of social norms. This thesis argues that the PRC and ROC used national mobilization<sup>25</sup> as a strategy to create "homogenous national cultures," and social and political cohesion amongst their people. The PRC and ROC employed four methods of national

mobilization to keep their central value systems alive, to help their people exhibit socially acceptable behaviours, and therefore to maintain their political leadership.

The means included persuasive methods (the provision of a common vision and the specification of external opposition forces) and coercive methods (the transmission of the central value system and the suppression of the propagation of opposing values; and social control). In particular, the common vision, the fight against national enemies, and the claim of superiority of official beliefs over others have become part of the central value systems in the social transformation of the PRC and ROC.

In order to obtain political mobilization and maximize the possibilities of mass manipulation, the ruling elites of the PRC and ROC utilized their central value systems to provide their people with a common vision. The CCP utilized socialism to explain why people in Imperial China were exploited by landlords, to provide the people with an identity as members of working class, and to suggest ways to free them from capitalist exploitation and oppression.<sup>26</sup> The CNP attempted to restore the cultural and political identity of mainlanders who moved to Taiwan, and native Taiwanese who had been ruled by Japan. The CNP appealed to the Principle of Nationalism which emphasized Chinese as a race and as a nation.<sup>27</sup> Moreover, Sūn and Jiǎng Jièshí believed that the Principle of Nationalism could help bring economic prosperity, national independence, and freedom to the Chinese race through raising the ethical standard of the Chinese.<sup>28</sup>

However, the PRC and ROC took different routes. The CCP hoped to

lead their people away from feudal and imperialist oppression, via a primitive stage of socialism, and finally to communism. The CNP tried to mobilize their people, first, to construct Taiwan as a model province, then to recover China from the communists, and finally to strive for a stage of "all under heaven."<sup>29</sup>

Another persuasive method to bring people together by the ruling elites of the PRC and ROC was to unite the nation by the specification of enemies. The ideological enemies of these two countries refer to competitors who held or hold central value systems antagonistic to those of the PRC and ROC; and particularly to imperialism and capitalism represented by the US for the PRC, and communism represented by the USSR and PRC for the ROC. In the PRC press, the CCP promoted amongst its people the concept that the first national enemy was the US in the 1950s, and the USSR in the 1960s.<sup>30</sup> In the ROC in 1960, Premier Chen Cheng of the ROC even intimidated his people with messages about the potential "bloodbath in Taiwan" which might be launched by the PRC.<sup>31</sup> In February 1988, President Lǐ Dēnghuī stressed that "the Chinese Communists [have] never repudiated the use of military force to 'liberate' or reunify Taiwan."<sup>32</sup>

The provision of a common vision and the specification of opposition forces were persuasive ways to unite people to work for specific goals in the PRC and ROC. However, the persuasion of the CCP and CNP did not necessarily result in massive response and action by their people, in the elimination of domestic rival powers from the political structure, and hence in the creation of socio-political cohesion amongst the people. Therefore, coercive methods were also needed.

The first coercive method to achieve social harmony in the PRC and ROC was the preferential treatment of the official value system, and the suppression of antagonistic ones from within and without.

The ruling elites of the PRC and ROC defined which official ideas were to be encouraged in public arenas including schools and official mass media. In the PRC, to be a Chinese, as argued by former Party Secretary-General, Hú Yàobāng, is to have socialist "revolutionary ideals, morality and discipline" and to live within the socialist political and economic structures.<sup>33</sup> Most important of all, a socialist Chinese is one who supports socialism and particularly the party's leadership; propositions conspicuously emphasized in the Four Cardinal Principles of Dèng Xiǎopíng since 1979.<sup>34</sup> These principles are so important that they were written into the 1982 constitution and into its 1993 revised version.<sup>35</sup> Every Secretary-General had to repeat Dèng's formula and stress its importance on crucial occasions.<sup>36</sup>

As in the PRC, Jiǎng Jièshí argued that to be a Chinese is to possess and actualize Chinese morality in loving the nation and the people, in serving them, and in discipline. The core of the nation is the past culture, customs and ethics. Particularly, the Principle of Nationalism is to make the people aware of their nationhood, to accept mutual responsibility as fellow citizens, and to learn that "the continuity of the blood and food of the lineage" defines the fate of the nation.<sup>37</sup> Schools and mass media are, according to Robert G. Sutter, the channels for the promotion of the instructions of the President and the policies of the CNP.<sup>38</sup>

On the other hand, the ruling elites of the PRC and ROC defined which

ideas and activities ought to be suppressed or redirected in their societies. In the PRC, the top political executives discouraged antagonistic ideas and activities. Rival power sources, like capitalist and religious institutions, were eliminated, contained, neutered or assimilated.<sup>39</sup> Despite the protection by the constitution, freedom of speech and belief is in actuality subordinated to socialism. Any "disruption of the socialist system by any organization or individual is prohibited" by the constitution.<sup>40</sup> Like those opposition intellectuals during Máo's leadership, the arrested student leaders who argued for Western democracy and anti-corruption in the 1989 Tiananmen incident were charged with counter-revolutionary rebellion. The breaking of this student movement by military force "marked the limits of the political change" for the existing party leaders.<sup>41</sup>

In contrast to the PRC which promoted communist ideals, the ROC suppressed the propagation of communist ideas and activities, particularly before 1987. The CNP was authoritarian,<sup>42</sup> and allowed no opposing forces to challenge it until the late 1980s. In 1951, Jiǎng Jièshí indicated that those who did not support the anti-communist activities would be regarded as "enemies and undesirable elements of the nation."<sup>43</sup> The martial law against communist activities was in effect between May 1948 and October 1986, and some constitutional rights, like rights of establishment of new parties, freedom of speech and press, were suspended up to the late 1980s. Books by Marx, like *Capital*, were available to the public in Taiwan only after the lifting of martial law in 1987.<sup>44</sup>

The second coercive method to maintain social cohesion and political

conformity in the PRC and ROC was their mechanisms of social control to deal with domestic opposition forces, and to compel people to adapt to the values, norms, and behaviours which were defined by political leaders in the respective socio-political structures. Social control refers to forms, mechanisms and processes in society whereby "society 'gets into' the individuals to form social personality", and also refers to "the cultural, economic and social structures of the societies themselves within which these processes take place."<sup>45</sup> The ruling elites of the PRC and ROC, this thesis suggests, used these processes to ensure that individual members of society conformed, willingly or reluctantly, to the existing socio-political status quo.

Both the PRC and ROC have a strong "infrastructural power" to penetrate society and to organize social relations.<sup>46</sup> In the PRC, the CCP extended its Leninist party structure to every level of ordinary life in the PRC. A propaganda department was established under the Secretary-General, and the party organization paralleled the administrative subdivision from the state to the county level. Party organizations existed, for instance, in people's communes, factories, schools, and mass communication agencies. The Communist Youth Leagues were very active on school campuses, particularly when politics took command.

As in the PRC, the CNP had a vast network of agencies to control the activities of transmitting value systems in the ROC. Like the CCP, the overall organizational structure of the CNP is, as noted by some scholars, "Leninist" in structure and in its "democratic-centralist principles" of organization.<sup>47</sup> The "Leninist" structure is the realization of Jiǎng Jièshí's belief that the Party is the

brain of all government organs.<sup>48</sup> The ruling party also controlled and regulated a broad spectrum of the social and political life of people in Taiwan.<sup>49</sup> One of the duties of the National Security Council was to ban communist activities in Taiwan. The opposition party, the Democratic Progressive Party, which emerged after 1987 accused the National Security Council of spying on their activities. Moreover, 12.5% of the entire Taiwanese population were recruited as party members in 1989; the percentage was larger than that of the PRC (less than 5%). The local cells of the CNP manipulated local electoral processes to ensure party members were elected.<sup>50</sup> The local Youth Leagues of Anti-Communism and Saving the Nation were official party organizations in the higher education system of the ROC.

Through such techniques, the ruling elites of the PRC and ROC socially constructed a central value system to which people were supposed to conform, and shaped a socio-political framework according to this official belief system. The socio-political contexts in which higher education of the PRC and ROC was institutionalized were publicly monolithic and were determined by the ruling elites. However, the socio-political contexts of these two Chinese higher education systems were complicated by the societal contradictions evolving around their central value systems, and by the development of the international relations of the PRC and ROC. The next section will first examine the societal contradictions which led to the supplementary revision of the revolutionary domestic relations in these two Chinese countries.



### **3.3 SOCIETAL CONTRADICTIONS AND DOMESTIC RELATIONS IN THE PRC AND ROC: THE SECONDARY SOCIAL TRANSFORMATION**

This section describes the societal contradictions which emerged and the revision of some of the domestic relations in the PRC and ROC. This section argues that different societal contradictions evolved in the course of the construction of the central value systems in the PRC and ROC. The domestic (either socio-political or economic, or both) relations which were formerly redefined in the revolutionary stage were partially revised in both Chinese countries because of new domestic and international developments after the 1970s. In particular, the PRC emphasized economic, rather than political, reforms, and incorporated market mechanisms in the socialist economy; whereas the ROC stressed political adjustments and institutionalized opposition in the political structure. In other words, during the secondary social transformation, the PRC changed some of its socialist economic values; whereas the ROC adjusted some of its socio-political values.

#### **3.3.1 Societal Contradictions and the Secondary Social Transformation in the PRC**

This thesis suggests that the intricate relations between central value system, state, party and economy in the PRC created three societal contradictions: the adaptation of socialism in the PRC; the relations between market mechanisms and public ownership; and the power distribution between the CCP and the state.

### 3.3.1.1 Chinese Socialism: the Versions of Máo and Dèng

The first and foremost contradiction concerns the adaptation of socialism to suit the specific circumstances of the PRC. The political leaders of the PRC, this thesis argues, recognized that Marxism and Leninism did not completely suit the Chinese context, but still claimed to adhere to these principles for forty-four years. The ruling elite of the PRC supplemented Marxism and Leninism by Máo's version before the late 1970s, and then by Dèng's version from the late 1970s.

Máo attempted to adapt Marxism and Leninism to the PRC's context. He introduced the concept of class struggle to construct a new Chinese society which had formerly been rooted in Confucianism (emphasizing social harmony). However, he proposed, as noted by Franz Schurmann, an ever-changing and ever-expanding set of particular ideas, derived from the dialectical combination of ideological thinking with concrete problems in different contexts.<sup>51</sup> For example, Máo, unlike his socialist predecessors, promoted the ideas of people's communes during the Great Leap Forward Movement in the late 1950s. He emphasized the importance of the peasantry and the army, and of the coordinated political education of party cadres and citizens.<sup>52</sup> He also introduced thought rectification campaigns to remove opposition forces.<sup>53</sup> During the Cultural Revolution (1966-1976), Máo put politics in command. In other words, Máo's version of Chinese socialism was temporal and situational. New strategies of adaptation would be needed when new circumstances emerged in the PRC after his death.

Dèng offered a second version of Chinese socialism after the PRC

established diplomatic and economic relations with Western countries in the late 1970s. Under his leadership, the CCP rejected the adoption of class struggle as a party line in 1978. Dèng introduced the Four Cardinal Principles (four persistences in adhering to the Socialist road, upholding people's democratic dictatorship, the leadership of Communist Party, and Marxism-Leninism-Maoism) as a new definition of Chinese socialism. Later, he said that the PRC was in the "primitive state of socialism" and suggested that the PRC should develop "socialism with Chinese characteristics." Yet he has not offered any specific definition of Chinese characteristics.<sup>54</sup> From the reports and speeches of the ruling elite of the PRC, this thesis suggests that the PRC leaders usually equated Chinese characteristics with the demographic and economic conditions of the PRC -- which included the very largest population in the world and economic backwardness.<sup>55</sup> The ambiguous definition of Chinese characteristics, however, allowed the PRC to reintroduce the private sector and incorporate Western capital and technology into the Chinese socialist economy after the implementation of the open-door policy in 1978.

Despite the rejection of Marx's concept of class struggle and despite the dismissal of Máo's version, the ruling elite of the PRC still kept in the 1993 revised constitution Máo's version (Marxism-Leninism and the Thoughts of Máo), and at the same time incorporated Dèng's phrases, like "socialism with Chinese characteristics" and "socialist market economy."<sup>56</sup> The ruling elite of the PRC did not abandon socialism completely, or want it to be totally foreign -- it had to be adapted to the Chinese context. As a result, tensions in theory and practice between conflicting versions of Chinese socialism occurred. The

oscillation in the adoption of market forces, which will be discussed in the next section, was one such tension.

### **3.3.1.2 Private Sector and Public Ownership in the Chinese Socialist Economy**

The second societal contradiction of the PRC, this thesis suggests, is the existence of the private sector in a socialist economy. In the early 1950s, the private sector was allowed to exist under Máo's early leadership. Later, all private enterprises and organizations were nationalized after the manner of the Soviet economic model; i.e. these private institutions transferred their ownership to and were run by the state.

From the late 1970s, Dèng launched an economic reform which contradicted Máo's strategy by re-introducing the pre-1949 practice: market forces. June Dreyer suggests that Máo espoused equality and attempted to minimize the income gaps between people; whereas Dèng advocated prosperity, and permitted some people to get rich first.<sup>57</sup> Under Dèng's leadership, the private sector began to re-emerge within the socialist framework gradually in the early 1980s and rapidly from the late 1980s. In 1989, there were 90,581 registered private enterprises which had a labour force of 1.6 million people.<sup>58</sup> In December 1992, citizens are officially allowed to possess the means of production which previously and exclusively belonged to the state and collectivity. People are also allowed to employ or be employed as labour on a contract basis in private enterprises.<sup>59</sup>

The return of most former socialist countries including the USSR to a market-oriented economy created complications for Dèng's economic reform.

The global decline of socialism suggests that it had ceased to be a viable economic strategy. Dèng recognized the contribution of market mechanisms to the revival of the PRC's economy in the late 1980s, and at the same time maintained the basic socialist framework.

The tension between state control and market forces in the PRC from the early 1980s was reflected in the reclassification of its economy. The emergence of the private sector forced the ruling elite of the PRC to re-name its economic development: in the 1980s, the "primitive state of socialism" and as a "socialist commodity economy"; and in the 14th Congress of the CCP in October 1992, a "socialist market economy" in which market mechanisms are permitted to exist with public ownership within the socialist framework.<sup>60</sup>

### **3.3.1.3 Political Struggles in the Ruling Elite of the PRC**

The third societal contradiction of the PRC, this thesis suggests, was the oscillations between the integration and separation of party and state powers. Not uncommon in the politics of the PRC in the last forty-four years were power struggles between members of the ruling elite for the maintenance of or access to supreme leadership power. These power struggles arose from the intertwined relations between party and state powers under the concept of "democratic centralism" in the PRC. The National People's Congress, despite being the highest political body and despite its large membership (more than 2,900 members in 1993),<sup>61</sup> was dominated by extremely few political leaders.

The power struggles in the PRC, this thesis argues, led to further reinforcement of the integration, rather than separation, of party and state

powers, and the creation of personality cult in the socio-political culture in the PRC. Máo defeated Liú Shǎoqí and Dèng respectively in the late 1950s and early 1970s over economic policies. At the peak of his political career, Máo was head of the party, state, and army. His pictures or statues could be found in public places and on campuses.

In the 1980s, Dèng dominated the political structure without obvious rivals. He banned the personality cult of leaders, dead or alive, in 1980.<sup>62</sup> In spite of this, his followers quoted his words in most important occasions as much as Máo's devotees did. Dèng also attempted to strengthen the state by separating it from the core of the CCP. In the National People's Congress in 1988, only two members of the Politburo, as noted by John Kohut, concurrently took up top government posts.<sup>63</sup> However, the separation between the party and state was not successful. The party and government positions were often occupied by the same persons.<sup>64</sup>

After the student movement in 1989, Dèng faced leadership challenge by the conservatives comprising old revolutionaries including Chèn Yún over the issue about the introduction of market forces. The concentration of power, then, recurred in the Eighth National People's Congress in March, 1993. Like Máo, Jiāng Zémín was elected to hold concurrently the three highest posts: the Secretary-General of the CCP, the President of the PRC, and the Chairman of the Central Military Commission. Most of the members of Politburo were also designated to take up key executive posts in the State Council.<sup>65</sup> Kohut has argued that the re-integration of party and state powers in 1993 was Dèng's deliberate act to bolster Jiāng as his successor.<sup>66</sup>

These three societal contradictions (the continuous adaption of socialism, and oscillations in the adoption of market mechanisms and in the integration of party and state powers), this thesis suggests, indicate that the ruling elite of the PRC has not yet developed a successful strategy to handle the problems arising from the specific circumstances of the PRC. However, the CCP does not want to return to the situation of pre-1949 China. Dèng has explicitly expressed his fear of the PRC's return to a condition of semi-colonization and semi-feudalism if the PRC abandons socialism.<sup>67</sup>

Moreover, these societal contradictions indicated that economic reform took priority over political restructuring in the PRC after the implementation of the modernization programme in 1978. The CCP, as pointed out by Keven J. O'Brien, made no significant political reform even under Dèng's leadership, although the CCP began to legalize political powers and circumscribe the authority of individual political leaders.<sup>68</sup> The CCP granted only small influence to non-CCP forces, and did not encourage political competition.

Therefore, the domestic socio-political contexts of the PRC (in which its higher education system was institutionalized) have allowed no opposition to exist in the last forty-four years, whereas the economic context has been changed from a planned economy to a "socialist market economy" since the late 1980s. In contrast, the socio-political contexts of the ROC (in which its higher education was institutionalized) were at first monolithic, and later were marked by political reforms in the last decade. This will be discussed in the next section.

### **3.3.2 Societal Contradictions and the Secondary Social Transformation in the ROC**

This section argues that despite the fact that there was no conspicuous leadership challenge to Jiǎng Jièshí and his son, the claims of their leadership over Taiwan (the government of the ROC as the sole legitimate government of "all China" and Taiwan as a province of the ROC) have created four major societal contradictions in the ROC in the last forty-four years. These ironies were the political status of Taiwan; the suspension of certain civil rights which were endorsed by the constitution; the conflicts between mainland- and local-born Chinese in the political structure; and the institutionalization of opposition in the political structure to preserve the legitimacy of the leadership of the ruling party, the CNP. These contradictions and the revisions of domestic relations – Taiwanization and institutionalization of opposition – in the ROC indicate that its ruling elite emphasized political reform, and that the ROC leaders began to change the basis of leadership legitimation from moral appeals to institutional mechanisms of direct election.<sup>69</sup>

#### **3.3.2.1 The Political Status of Taiwan in the Eyes of the CNP**

The first, and fundamental, societal contradiction is the claim of the ROC about the political status of Taiwan. The CNP insisted on its claim of political leadership over "all China" (including Taiwan and mainland China) from 1949. The jurisdiction of the ROC, however, covers only the Taiwan island, and 3 other small islands (Penghu, Matsu, and Kinmen). The ruling elite believed that mainland China was only "temporarily" lost to the Chinese communists, and would be recovered. These political claims helped the CNP justify the



creation of a dual political and administrative structure on the island: national and provincial.

At the provincial level, native Taiwanese were citizens of the Province Taiwan; whereas the mainlanders, despite their "temporary residency" for more than four decades in Taiwan, were also citizens of their original provinces in mainland China. Moreover, a provincial government was established and people were allowed to participate in local elections.

At the national level, Taiwan was one of the provinces of "all China" and native Taiwanese were only a small proportion of the total population of "all China." Both native Taiwanese and mainlanders were citizens of "all China." In the national elective bodies (the National Assembly, Legislative Yuan, and Control Yuan), members should be elected from the provinces of "all China."

The dual political structure (provincial and national) in the ROC created three other contradictions: the suspension of people's rights; conflicts between mainlanders and native Taiwanese over political interests; and the relations between the ruling party and opposition forces. These three societal contradictions will be discussed in sequence.

### **3.3.2.2 Suspension of People's Rights**

The second societal contradiction in the ROC particularly before the late 1980s was the suspension of some people's rights which were endorsed by the constitution and advocated by the Three People's Principles. The CNP, after moving its seat to Taiwan, adjusted the re-election of the President and Vice-

President to escape the maximum of two terms of office imposed by the constitution.<sup>70</sup> Also suspended were general elections of the President and members of the three national elective bodies: the National Assembly, Legislative Yuan and Control Yuan. As a result, these three political organizations have been dominated for four decades by the deputies who were elected in mainland China and had no constituencies in Taiwan.<sup>71</sup>

The CNP also denied other rights of people to form opposition parties, and to have freedom of speech and assembly before the late 1980s. The domination of the CNP in the political and state structures, which will be examined in the next section, also excluded most of the native-born Taiwanese from occupying high rank positions in these structures. Conflicts between mainlanders and native Taiwanese emerged as a socio-political problem in the ROC.

### **3.3.2.3 Intra-ethnic Conflicts Between Mainlanders and Native Taiwanese**

This thesis argues that the third societal contradiction of the ROC is the CNP's political policies towards the native Taiwanese. This contradiction produced intra-ethnic conflicts between mainland- and local-born Chinese in Taiwan. Over the last four decades, about 85% of the population in Taiwan were native Taiwanese; and not more than 15% were mainlanders.<sup>72</sup> These two major groups of Chinese differed in their spoken language, pattern of residence, occupational roles,<sup>73</sup> goals and cultures.<sup>74</sup>

In the early 1950s, the mainlanders who moved with the CNP to Taiwan from China in the early 1950s controlled the political structure and restricted

the political opportunity of the native Taiwanese to secure high positions in party and state organizations. The local-born Taiwanese, as observed by John Kaplan, dominated the manufacturing, commercial and trading sectors of the ROC, and limited economic opportunity for those mainlanders outside the government.<sup>75</sup>

Later, the CNP broadened its local base of political support by recruiting as many party members from the native Taiwanese as possible. In 1988, 80% out of 2.5 million members of the CNP were native Taiwanese.<sup>76</sup> The native Taiwanese also recognized that the main way to join the governmental structure was to become members of the CNP.<sup>77</sup>

On the other hand, the CNP restricted the access of the local-born Taiwanese to high positions in the party, government and armed forces. The top and strategic positions were mostly occupied by mainlanders. The CNP, as argued by Zhāng Guóxīng, used the concept of Taiwan as a province to protect the political interests of mainlanders at the expense of local-born Taiwanese.<sup>78</sup> In 1969, only 7 (7.1%) out of 99 seats in the highest policy-decision body, the Standing Committee of the National Assembly, were occupied by native Taiwanese.<sup>79</sup> Moreover, the old guard (mainlanders) of the CNP, as mentioned earlier in this chapter, had occupied the seats of three national elective bodies (National Assembly, Legislative Yuan, and Control Yuan) without election for more than four decades.

#### **3.3.2.4 Taiwanization and the Institutionalization of Opposition**

The fourth societal contradiction of the ROC, this thesis argues, is the

maintenance of the legitimacy of the leadership of the CNP through sharing limited political power with those who were formerly excluded from the political and state structures. In order to redefine the legitimacy of its leadership, the CNP introduced the policy of Taiwanization and the institutionalization of opposition in the socio-political structure of the ROC.

This thesis defines Taiwanization as the process of recruiting more native Taiwanese into the higher echelons of the ruling party and government in the ROC; and the institutionalization of opposition as the legalization of the incorporation of opposition forces against the prevailing ruling party.

These revisions of the relations between the ruling party, state and people in the late 1980s were triggered by new international political and domestic socio-political developments in the ROC from the early 1970s.

At the international level, the government of the ROC was no longer a legal representative of China in the international community after the United Nations expelled the ROC and recognized the PRC as an official member in 1971. The ROC also faced diplomatic isolation by many countries which established links with the PRC. All these diplomatic failures of the ROC invalidated the CNP's claims of leadership over "all China" (including mainland China and Taiwan); and challenged the existing institutional order and dual political structure (national and provincial) on the island.

At the domestic level, the economic prosperity of Taiwan and the emergence of a well-educated middle class of local-born Taiwanese (including young entrepreneurs and professionals) in the 1970s initiated changes in the political structure of Taiwan. In 1993, more than 60% of the people in Taiwan

were classified by the government as middle-class.<sup>80</sup> These new elites, as pointed out by Sheng Shing-Yuan and Ting Tin-Yu, demanded more chances to participate in urban and political affairs, and even expressed their wish to reform the existing political structure.<sup>81</sup> Urban problems like housing arrangements and environment preservation are becoming political issues.

International and domestic political pressure, therefore, forced Premier Jiǎng Jǐngguó to bring more native Taiwanese into the upper ranks of the party and government in the late 1970s. It was believed that the recruitment of more native Taiwanese would ease conflicts with mainlanders over political interests, and hence would maintain the legitimacy of the CNP leadership over Taiwan. The percentage of native Taiwanese in the Central Standing Committee of the CNP was increased from 14.3% in 1969 to 21.7% in 1976,<sup>82</sup> and to 44% in 1987.<sup>83</sup> In 1984, Jiǎng promoted Lǐ Dēnghuī to be the first local-born Taiwanese Vice-President. Lǐ also became the President in 1988.

The enhancement of political competition in the ROC lagged behind Taiwanization by more than a decade. No significant political reforms took place until 1987. Robert G. Sutter argues that the CNP changed its attitude towards opposition forces from suppression to toleration because the ruling elite could no longer rely on the moral mandate of leadership inherited from the first-generation leaders.<sup>84</sup> The party leaders then depended on the expansion of popular election and improvement of governmental performance. Tien Hung-mao argues that the maturing of socioeconomic conditions and the commitment of the ruling elite were catalysts of the "democratic transition" in the ROC.<sup>85</sup> However, Sutter and Tien can only explain the change of the

CNP's political policies towards the native Taiwanese and opposition, but not the drastic pace of political reform in a short period of several years after 1987. Both Sutter and Tien underestimate one external factor of the ROC -- the PRC.

This thesis suggests that the rapid incorporation of the opposition party in the political structure commenced in the ROC only after the PRC had successfully arranged in the middle of the 1980s the return of Hong Kong and Macau under the policy of "one country two systems." Taiwan remains the last territory which the PRC attempts to incorporate. The increase in political competition in the ROC was used by the CNP as a diplomatic strategy to regain the political support of the international community, and to resist the diplomatic isolation and the proposal of unification by the PRC. The military crackdown on the student movement by the CCP in the PRC in 1989 resulted in temporary economic sanctions and the suspension of high-level diplomatic activities by Western countries. This created an opportunity for the ROC to show its improvement in political competition in a contrast to the PRC's suppression of opposition.

Against this background, political reform took place within a short period, particularly after 1989. Jiǎng Jīngguó had announced the lifting of the martial law in October 1987 and partial incorporation of opposition party in the state structure up to the legislative level. After the death of Jiǎng Jīngguó in 1988, President Lǐ Dēnghuī further increased the chances of political contest in Taiwan. In June 1990, he declared compulsory retirement of all members of the three national elective bodies by the end of 1991. These members included those who were elected on mainland China in 1949 and in Taiwan

in 1969.<sup>86</sup> He also terminated the "Period of National Mobilization and the Suppression of Communist Rebellion" in May 1991. Full direct election of members of the National Assembly took place in December 1991. The result of this election gave the CNP its first popular mandate since its leadership began in 1949.<sup>87</sup> People also participated in direct voting for the members of the Legislative Yuan in January 1993. The direct election of the next President of the ROC is scheduled to take place in 1996.

Despite these political reforms, the CNP was still the ruling party and the opposition party could not obtain majority support in the national elections.<sup>88</sup> A survey by Lin Chia-cheng in 1990 indicated that more than 57% (out of 1,500) interviewees still believed that the CNP could maintain economic prosperity and political stability in the ROC.<sup>89</sup>

Moreover, political conflicts between mainlanders and native Taiwanese still continued in the late 1980s and the early 1990s. Yung Wei predicted in the early 1970s that the differences and tensions between them would rapidly disappear.<sup>90</sup> However, the trend of the domination of mainlanders in the political structure has not yet been reversed. The percentage of the native Taiwanese in the upper part of the political structure was increasing, but was still far below 85% (the percentage of native Taiwanese in the total population).<sup>91, 92</sup> In early 1993, President Lǐ Dēnghuī admitted that most of the colleagues around him were still mainlanders, not native Taiwanese.<sup>93</sup>

New dimensions of the intra-ethnic conflicts between mainlanders and native Taiwanese were also developed. The political interests of mainlanders were threatened by the ascendancy of native Taiwanese in the political

structure in the early 1990s. The mainlanders accused the Democratic Progressive Party (which were formed mainly by native Taiwanese) of trying to get rid of mainlanders from the political structure.<sup>94</sup> In August 1993, 6 CNP legislators whose parents moved from mainland China to Taiwan in 1949 parted with the mainstream of the CNP, and formed a third party, the New Party in the Legislative Yuan under the leadership of President Li. All these conflicts between mainlanders and native Taiwanese, though eased, have not been eradicated in recent political reforms.

Therefore, the secondary social transformation in the ROC, this thesis has argued, indicates that its ruling elite emphasized political reform so as to maintain its leadership, and shifted, though not yet completely, its appeals for political support from a moral to an institutional basis.

To sum up, at the domestic level, the socio-political contexts in which the higher education system of the PRC have framed have been publicly monolithic for the last forty-four years, despite the double economic transformation from the initial acceptance, to the banning, and finally to the re-acceptance of market forces. In contrast, the socio-political contexts of the ROC in which its higher education was framed underwent a double political transformation from Japanese colonial rule to one-party leadership without the toleration of political competition, and then to tri-party leadership with the acceptance of opposition forces in the political structure.

The international contexts of the PRC and ROC, which will be examined in the next section, also framed their higher education systems within the world system of cultural multiplicity.



### **3.4 INTERNATIONAL RELATIONS OF THE PRC AND ROC: THE FIRST AND SECONDARY TRANSFORMATIONS**

This section attempts to explore the first and secondary transformations of the international relations of the PRC and ROC in the last forty-four years. The section highlights the ideological, international political and international economic criteria of closure, rejection and adoption used by both Chinese countries.

The argument of this section is that the tension, between the rejection of foreign values which were deemed conflicting with the official ones by political leaders and the development of external relations with other countries in the PRC and ROC, was framed by their international contexts. These two countries implemented international closure in different stages. The international "closure" of a country is defined as its resistance to establish diplomatic relations with and to participate in activities organized by specified other countries. "Closure" against some countries may mean, at the same time, the establishment of relations with others.

The political leaders of the PRC and ROC developed external relations with foreign countries according to three major criteria: ideological, international political, and international economic. At the initial stage of social transformation after revolution, the PRC and ROC were most likely to reject those countries which practised value systems which were antagonistic to those of the PRC and ROC. However, the development of external relations of the PRC and ROC was complicated by international political and economic influences. Any change in the relations of the PRC and ROC with the US and USSR would affect the relations of these two Chinese countries with others.

Moreover, the PRC and ROC participated in the international division of labour and established economic links with countries which allowed their capital to flow into the Chinese economies.

A discussion of the ideological, international political and international economic criteria used by the PRC and ROC in dealing with their international relations will be presented in sequence. Ideological criteria are chosen firstly because the PRC and ROC have their own state-supported central value systems which would interact with others in the world system of cultural multiplicity, and the respective Chinese states would place checks on such interactions; and secondly because ideological criteria affect the definition of the diplomatic world of the PRC and ROC during the first transformation. International political and economic criteria are stressed because international political and economic developments, as suggested by Wallerstein and mentioned in Chapter One, affect the flow of capital between countries in the world system.

### **3.4.1 Ideological Criteria of the PRC and ROC during the First Transformation**

This thesis argues that during the founding period the PRC and ROC established external relations with foreign countries which supported the central value systems invoked by the respective Chinese ruling elites.

The PRC's basic criterion for international openness was pro-socialist, i.e. to develop external relations with countries in the socialist bloc. In June 1949, Máo Zédōng decided to "lean to one side [the former USSR]," and exalted it as the "best teacher" for China in the communist revolution.<sup>95</sup>

To the PRC, pro-socialist also meant anti-capitalist at the international level. The PRC did not turn to the US and its allies before the 1970s. Máo, despite his recognition of the US as a leading superpower among imperialist countries,<sup>96</sup> termed American imperialism a "paper tiger" in 1956.<sup>97</sup> The Běijīng government advocated "anti-Western imperialism" and "anti-capitalism,"<sup>98</sup> and organized numerous anti-US and anti-imperialist demonstrations before the 1970s.<sup>99</sup> The ruling elite of the PRC even identified communist countries, like Yugoslavia which were associated with the US, as imperialist.<sup>100</sup> Therefore, the PRC did not have many diplomatic links with capitalist countries and their allies in the 1950s and 1960s.

In contrast with the PRC, the ROC upheld an anti-communist approach in dealing with foreign countries. The anti-communist attitude of the CNP arose from the party leaders' belief in the final victory of the Three People's Principles over communism.<sup>101</sup> Much of the CNP's anti-communist attitude arose from their antagonism towards the CCP, and not just communism in general. In 1952 in the National Assembly, Jiǎng Jièshí announced that the CCP and communism should be opposed persistently.<sup>102</sup> The CNP was determined to crush Chinese communists, and attempted to contain the PRC through strengthening its relations with anti-communist nations.<sup>103</sup> The association of the ROC with Western countries, particularly the US, was a matter of military necessity and of belief.<sup>104</sup> This in turn blocked the ROC's relations with other communist countries.

The dualistic criterion of the PRC and ROC for developing external relations with foreign countries was quite linear. In many international arenas,

the CCP and CNP, however, adopted more flexible foreign policies before 1949 and particularly after the late 1970s.

### **3.4.2 The International Political Relations of the PRC and ROC during the First and Secondary Transformations**

This thesis further argues that the establishment of external relations of the PRC and ROC depended on their relations with the two superpowers, the US and the former USSR, in the last four decades; any shift in the mutual relations and interests among the four countries would affect the relations of the PRC and ROC with other countries. In short, both the PRC and ROC developed foreign relations according to their political interests. This was indicated by the oscillating attitudes of the PRC and ROC in opening up to their ideological friends and enemies before 1949 and after the 1970s.

#### **3.4.2.1 International Political Criteria of the PRC**

Before 1949, the political interests of the CCP were to gain international support to defeat the CNP in the civil war. Before leaning to the USSR, Máo Zédōng attempted to call for American help in 1944.<sup>105</sup>

Between 1949 and the late 1970s, the diplomatic world of the PRC was, however, divided in accordance with its international political interests into two parts: supporting and opposing the PRC. The PRC warmly welcomed the USSR because both countries wanted to stop American imperialism in Asia.<sup>106</sup> In September 1949, Máo announced the principle of alliance with other countries, "first with the USSR and every new democratic nation."<sup>107</sup> After the PRC-USSR split in 1960, the PRC began to distance itself from the

USSR, and called the USSR the "major enemy" and the US the "minor enemy."<sup>108</sup> The cause of the gradual, but drastic, change of attitude, according to the PRC, was two-fold: Soviet hegemonist behaviour and failure to back the PRC with military support.<sup>109</sup>

In the 1970s, the PRC began to redefine its relations with capitalist and socialist countries. The PRC, after having suffered diplomatic isolation by Western countries for more than two decades, attempted to re-enter the international community and to increase the leverage against the USSR's alleged aggression. Without American objection, the PRC was admitted to the United Nations as a member in 1972. In the same year, the PRC re-established its diplomatic relations with the US and Japan.<sup>110</sup> In 1979, Deng Xiǎopíng paid a diplomatic visit to the US and invited it "to unite" with the PRC so as to "place curbs on the polar bear [the USSR]."<sup>111</sup> In 1983, the PRC ended its self-imposed isolation from the West, and proposed that "countries with different social systems can peacefully coexist and equally cooperate."<sup>112</sup> All these actions of the PRC indicated that it wanted to be independent from the USSR in the socialist bloc and to expand the PRC's diplomatic world to include capitalist countries. After the fall of the USSR in 1991, the PRC still maintained diplomatic relations with the Commonwealth of Independent States. By March 1993, the PRC had diplomatic relations with 155 countries including capitalist and the remaining socialist nations.<sup>113</sup>

The PRC exhibited a pattern of oscillating diplomatic relations with foreign countries: from calling for American help to relying on Soviet support in 1949, to the PRC-USSR split and cooperation with Western countries

between the 1960s and 1980s, and to the inclusion of capitalist and socialist countries in the PRC's diplomatic world in the early 1990s. Like the PRC, the ROC, which will be discussed in the next section, has exhibited another pattern of oscillating diplomatic relations in the last forty-four years.

### **3.4.2.2 International Political Criteria of the ROC**

Like the PRC, the ROC has established its diplomatic relations with other countries according to its international political interests since 1949. One of the major international political interests of the ROC has been the survival of Taiwan as a political entity.

Before 1949, before welcoming US military support in the early 1950s, Jiǎng Jièshí asked Russian advisors in 1925 to train his army to fight against the British,<sup>114</sup> and his government treasured its recognition by the USSR as the legitimate government of China until 1950.<sup>115</sup>

Between 1949 and 1978, the foreign policy of the ROC was to support international alliances against the PRC with the noncommunist countries so as to maintain Taiwan as a political entity by military and diplomatic means. The Taipei authorities relied on American military support to stop the potential attack by the PRC in the 1950s.<sup>116</sup> The ROC improved its relations with the US and appealed to non-communist countries in East Asia, e.g. South Korea and the Philippines. The strategy successfully prevented the PRC from entering the United Nations until 1971.

However, the ROC was forced to adjust its diplomatic relations with capitalist countries particularly after its expulsion from the United Nations in

1971. France (1963), Canada (1970) and Japan (1972) were the first major capitalist countries which switched their support to the PRC. The US demoted the US-ROC diplomatic relation from an official to "unorthodox" level.<sup>117</sup> The embassies of both countries were dissolved, and new nongovernmental entities were established to handle the "ambassadorial" affairs of these two countries.<sup>118</sup>

The new international political environment compelled the ROC to adopt another diplomatic strategy to resist the PRC, i.e. to improve economic relations instead of political and diplomatic relations with foreign countries. (More discussion about this strategy will be offered later in this chapter.) This new strategy allowed the ROC to improve its relations with the communist bloc.<sup>119</sup> The ROC permitted Hungary and Poland to establish trading offices in Taipei in 1989. The Executive Yuan announced in February 1990 that the ROC could have direct trade with the former USSR and Albania.

In the last forty-four years, the PRC and ROC have had a double transformation in their diplomatic relations in accordance with their respective political interests and international political developments. Before 1949, the founders of the PRC and ROC attempted to gain the international support of both capitalist and socialist countries. Between 1949 and the early 1970s, the ruling elites of the PRC and ROC developed a dichotomized diplomatic world consisting of friends and enemies. After the 1970s, both Chinese countries assigned the ideological criterion of rejecting enemies to a subordinate level, and developed external relations with those who earlier had been ideological enemies. Alongside political interests of the PRC and ROC were economic

considerations which will be discussed in the next section.

### **3.4.3 The International Economic Relations of the PRC and ROC during the First and Secondary Transformations**

This section argues that the adherence of the PRC and the ROC to the superpowers did not necessarily allow them or their allies to penetrate the national economy of the PRC and ROC unless these foreign countries had their capital – in form of grants, loans, trade or technical assistance – flowing into the Chinese economies.

#### **3.4.3.1 The International Economic Criteria of the PRC**

The PRC, this thesis argues, established economic links with foreign countries which could help the PRC to pursue capital accumulation in the world economy, and modified its economic structures twice in the last forty-four years.

In the founding period, the PRC faced economic isolation from the Western countries, and received economic and technical support from its ideological friends, particularly the former USSR. In 1948, the American government declared that the US would not support any Chinese communist government, and passed the China Aid Act to grant financial assistance to the ROC.<sup>120</sup> The Beijing government, then, turned to the USSR, and accepted its economic and technological aid before their split in 1960.<sup>121</sup> In particular, by the end of 1957, 10,800 Soviet specialists were sent to China and assisted it in industrial development and in the training of Chinese workers and technicians.<sup>122</sup>



Accompanying economic and technological aid was the importation of the Soviet's highly centralized economic model into the PRC in the 1950s. Like the USSR, the PRC, from the capital, devised mandatory national plans for all units of production,<sup>123</sup> controlled the basic processes of industrial accumulation and production, standardized wages, and regulated the distribution, circulation and exchange of goods.<sup>124</sup> All enterprises were highly centralized despite some slight oscillations between centralization and decentralization of economic power during the reform periods before 1978.<sup>125</sup>

However, the changes in the international political situation (which was discussed in the previous section) from the 1970s also altered the sources of foreign capital and their influences on the PRC economy. In order to have access to Western capital and technology, the PRC adjusted its mode of economy to a "socialist commodity economy" in the early 1980s, and officially to a "socialist market economy" in 1992. The Soviet model had been denounced by the CCP since 1978.<sup>126</sup> The reform in the PRC's socialist economic system continued with the introduction of market mechanisms similar to Hungary and a "mixed" economy, rather than to the Yugoslav model of the 1970s.<sup>127</sup>

Despite the gradual incorporation of market forces into the Chinese socialist economy from the 1980s, the Beijing authorities still insisted that market mechanisms were to be operated within the framework of public ownership. In 1984, Premier Zhào Zǐyáng attempted to differentiate the "socialist-commodity economy" from a capitalist economy, and from the previous Chinese socialist economy.<sup>128</sup> Market forces were frequently

regarded by the CCP as mechanisms playing only a "supplementary role of regulation by the market" in the socialist economy,<sup>129</sup> and were allowed to operate in different sectors: market mechanisms were dominant in the agricultural sector, and the planned economy was characteristic of the industrial sector.<sup>130</sup> However, the industrial and service sectors, particularly in the coastal cities, were also opened up to foreign investments from the late 1980s. The percentage of commodities whose price was controlled by the state was reduced from 50% in 1988 to 20% in 1992.<sup>131</sup> In other words, the PRC was neither a completely planned nor a total market economy.

However, the PRC's reliance on foreign capital meant accepting some foreign influence on the economy. In 1992, the PRC utilized foreign capital amounting to US\$ 18.8 billion, i.e. an increase of 62.7% over 1991. The number of enterprises totally or partially controlled by foreigners was increased by 79% from 47,000 in 1991 to 84,000 in 1992. These foreign-controlled enterprises accounted for 20.4% of the total value of exports of the PRC.<sup>132</sup>

Moreover, when the PRC wanted to expand its economic participation in international arenas, its economy was subject to more foreign influences. For example, in order to satisfy the preliminary requirements for the entry into the GATT in 1993, the PRC began to adjust its domestic economic mechanisms<sup>133</sup> and policies towards foreign investment.<sup>134</sup>

Thus, the PRC has had a double transformation in international economic relations and in domestic economy: the banning of market forces and the introduction of a highly centralized economic model from the USSR in the 1950s, and the re-incorporation of market mechanisms to tune in with capitalist

countries in the 1980s.

### **3.4.3.2 The International Economic Criteria of the ROC**

Like the PRC, the ROC, this thesis argues, developed and adjusted its economic relations with foreign countries in accordance with its pursuit of capital accumulation in the world economy. Unlike the PRC, the ROC has not changed its economic model in the last forty-four years.

The Taipei authorities received economic and technological aid from its ideological friend, the US, between 1951 and 1970.<sup>135</sup>

However, the ROC had no freedom in allocating American aid. The US insisted that its aid in the ROC should be spent on economic construction, rather than on military development. The American aid policy in the ROC was consistent with American President Truman's foreign policy towards the PRC and ROC: the US protected the ROC from PRC's potential attack, and prevented the ROC from attacking the PRC.<sup>136</sup> This policy of Truman, though frustrating the ROC's attempt to recover mainland China, improved the economic infrastructures of agriculture and industry in Taiwan.<sup>137</sup>

Unlike the PRC (which adopted completely the Soviet economic model in the founding period), the economy of the ROC was not totally modelled upon the US capitalist model. Rather, the state played an active role in planning the development of national construction, at the same time defending the material benefits of the majority.<sup>138</sup> In 1952, the percentages of state-run enterprises in industrial and manufacturing sectors were respectively 57 and 56.7.<sup>139</sup> Between 1953 and 1992, six Four-Year Plans, two Six-Year

Intermediate Plans, and two Ten-Year Long-Term Plans were launched.<sup>140</sup> The state also controlled the direction and development of agricultural and industrial sectors.<sup>141</sup>

The Taipei authorities, despite the central planning, encouraged the development of the private sector as in other capitalist countries. Unlike the PRC (before the late 1980s), the state economic plans of the ROC are mandatory for public enterprises, but serve only as guidelines for private enterprises.<sup>142</sup> The price of products is mainly determined by market mechanisms. The state determines the physical investment environment (like the control of the use of land and the provision of cheap electrical power) and the "psychological" climate, and guides the entry of the ROC enterprises into the world capitalist system.<sup>143</sup> The economic zones for processing imported goods in the 1960s and the Hsinchu Science-based Park in 1980 are successful examples of the transfer of foreign capital and technology into a state-controlled capitalist economy.

In the new international political situation from the 1980s, the ROC began to trade with communist countries, particularly the PRC. Indirect trade between these two countries through Hong Kong, up to July 1992, amounted to US\$ 20 billions. There were 2,552 Taiwan-funded companies, which held mainland assets worth US\$ 820 million, in the PRC.<sup>144</sup> One year later, the number of these companies was drastically increased by more than five-fold to 17,000.<sup>145</sup> The reasons for closer economic ties between the ROC and PRC include the utilization of the cheap labour<sup>146</sup> and science and technology<sup>147</sup> of the PRC by Taiwanese investors.<sup>148</sup>

In conclusion, the PRC and ROC developed external relations with other countries according to their political and economic interests in the world system, and have had double transformations in international political and economic relations in the last four decades. However, during the development of international relations of the PRC and ROC, contradictions emerged and complicated the international contexts of these two Chinese countries (which framed their higher education systems). This will be discussed in the next section.

### **3.5 CONTRADICTIONS IN THE INTERNATIONAL RELATIONS OF THE PRC AND ROC AFTER SECONDARY TRANSFORMATION**

This thesis argues that since the late 1970s, the PRC and ROC, despite the secondary re-definitions of their political and economic relations with other countries, have not settled their relations with other countries, particularly those which were their arch-enemies before the 1970s: the US for the PRC; the PRC for the ROC. In other words, both Chinese countries are still defining their national identities in the international community. The search for national identity of these two Chinese countries is indicated by the complexities, particularly the contradictions, of their international relations after the 1970s.

#### **3.5.1 The Unsettled Relations of the PRC with Capitalist Countries**

Despite the adjustments in foreign policies towards Western countries since the late 1970s, the PRC, this thesis argues, has hesitated to develop full external relations with capitalist countries, particularly the US. The unsettled

international relations of the PRC from the 1970s were demonstrated by three contradictions in its practice of foreign policy: its reaffirmation of its central value system; its acceptance of limited economic loss for upholding territorial claims; and its limited adjustment in domestic political conditions for the return of the granting of the Most-Favoured Nation (MFN) status by the US. It should be noted that these three contradictions are not unrelated. Rather, they involve, for example, the relations between the PRC and US.

The first contradiction in the foreign affairs of the PRC was its reaffirmation of its state-supported central value system, particularly its anti-capitalist position, while it was opening up its economy to the West. The ruling elite of the PRC, this thesis suggests, was afraid of the conversion of the PRC from a socialist to a Westernized country with a multiple-party political system. The Cultural Revolution (1966-1976)<sup>149</sup> and "Anti-Spiritual Pollution Campaign" (1983) were examples which show this fear. The unprecedented student movement in 1989 was judged by Dèng Xiǎopíng to be a "counter-revolutionary uprising" which attempted to overthrow the CCP and the socialist system, to establish a capitalist republic, and to turn the PRC into a Western vassal.<sup>150</sup> The 1993 revised constitution explicitly stated that the CCP and the political system would continue to exist for a long time.<sup>151</sup> As a result of the military suppression of the student movement in 1989, the PRC suffered temporary economic sanctions, and high-level diplomatic isolation by Western countries. In other words, the ruling elite of the PRC attempted to preserve the political system and ideals at the risk of breaking relations with other countries.

The second contradiction in the international relations of the PRC is that the PRC would accept limited economic loss for the maintenance of political claims concerning its territory. For example, the CCP claims that Taiwan is a province of the PRC. In handling the arms sales of the US<sup>152</sup> and France<sup>153</sup> to the ROC in late 1992, the PRC accused these two Western countries of interfering in its domestic affairs. The PRC immediately closed the French consulate in Guangzhou on 23 December 1992, but has made no retaliatory action against the US so far. The PRC's differential treatment of the US and France suggests that the PRC will risk economic loss in exchange for persistence in political claims about the PRC's territory, but the economic loss must be limited. The PRC had an annual trade surplus of US\$ 2 billion with France, but a larger annual surplus of US\$ 15 billion with the US.<sup>154</sup>

The third contradiction is that the PRC, despite its strong objection in speeches, would accept some changes in domestic political conditions in exchange for maintaining international economic relations. An example was the PRC-US annual controversy of the granting of the Most Favoured Nation (MFN) status to the PRC by the US. In 1993, the US made use of its great trade surplus (US\$ 18 billion in 1992)<sup>155</sup> and imposed on the PRC a condition of its improvement of the human rights situation for the renewal of the MFN status.<sup>156</sup> The Foreign Minister of the PRC, Qián Jīchēn, objected to the conditions imposed on MFN status, and expressed the view that the granting of the MFN was an economic decision and should not contain any political conditions.<sup>157</sup> On the other hand, the PRC government released pictures showing the "comfortable" jailing conditions of five political dissidents,<sup>158</sup> and

released one of the arrested student leaders in the 1989 student demonstration, Wáng Dǎn, to fulfill the requirements of the US. However, the annual controversy over the MFN status forced the PRC to reduce its reliance on the US, and strengthen its ties with other Western countries like Germany and Canada.<sup>159</sup>

Thus, the PRC, since broadening its diplomatic networks in the 1970s, has not settled its relations with other countries, particularly of the West. The PRC would risk limited economic loss or diplomatic sanction for the preservation of the political system, some ideals and some territorial claims. The PRC would also make limited change in domestic political conditions in exchange for the inflow of capital from other countries. Like the PRC, the ROC, as discussed in the next section, has not settled its international political relations.

### **3.5.2 The ROC's Search for International Political Status**

This thesis suggests that since the expulsion from the United Nations in 1971, the fundamental contradiction of the ROC in its international relations has been that the ROC, despite its economic prosperity and being a de facto political entity, has no official political identity in the international community. The ROC seeks this identity by exercising its economic influences and subordinating some of its revolutionary claims against the PRC.

The lack of official political identity of the ROC in the international community, this thesis argues, was an outcome of its persistent domestic revolutionary claims. Both the PRC and ROC made claims: that there is only



one China; and that only their government is the sole legitimate representative of China in the international community. As discussed earlier in this chapter, they excluded each other in international arenas, particularly before the early 1980s. Even the US maintained only non-diplomatic relations with the ROC so as not to cut US-PRC diplomatic ties. In 1993, Premier Lǐ Péng of the PRC reaffirmed its policy towards the ROC: Taiwan can develop economic, but not diplomatic relations with those countries which have governmental relations with the PRC.<sup>160</sup> Up to now (at the moment of finishing this thesis), no "dual recognition" of the PRC and ROC as two separate official political entities has taken place in the international community. The number of countries which had diplomatic ties with the ROC dropped from 80 in 1971 to 29 in 1992.<sup>161</sup>

The ROC adopted two strategies to break the diplomatic isolation initiated by the PRC. First of all, the ROC utilized its economic influences to develop a non-diplomatic international network, and therefore to gain international support and recognition. President Lǐ Dēnghuī admitted in 1988 that the new foreign policy was "to pursue economic development in the absence of official diplomatic relations" and to use "trade, investment, cultural and technological channels to promote 'substantive relations' with free and democratic nations."<sup>162</sup> In other words, the establishment and expansion of external trade ties were viewed both internally and externally as evidence of the economic and political viability of the ROC as an independent system.<sup>163</sup>

Domestically, the ROC attracted foreign companies to participate in the construction of the infrastructure in the ROC; e.g. the US\$ 300 billion public

projects outlined in the Six-Year National Development Plan, 1991-1996.<sup>164</sup>

Internationally, the ROC diversified its economic networks. Up to early 1993, the ROC has maintained substantive economic and trade relations with 160 countries.<sup>165</sup> The ROC also maintained diplomatic relations with less than 30 countries (up to 1992) by granting subsidies or technical assistance to their economies, although most of these countries were small developing countries of Latin America and Africa.

Secondly, the ROC subordinated its political claims to economic interests and international participation from the 1980s. The ROC has changed its policy from the mutual exclusion of the PRC and ROC in international arenas to the acceptance of their coexistence. This is indicated in the ROC's acceptance of its country's name as "Chinese-Taipei" in the 1984 Olympics; and as "Taipei, China" in the Asian Development Bank in the 1980s and the early 1990s.

Moreover, the ROC, despite the insistence in the policy of "Three Nos" (no direct contact, no negotiation, and no compromise with the Chinese communists), developed limited political relations with the PRC from the 1980s. The first high-level official ROC-PRC interaction in the Chinese communist territory (since their split in 1949) took place when President Lǐ Dēnghuī sent the Minister of Finance, Shirley Kuo, to participate under the country name, Taipei China, in the conference of the Asian Development Bank held in Běijīng in 1989. In April 1993, the Taipei authorities also endorsed a semi-official organization to hold a "Wang-Koo Conference" with the PRC in a third country, Singapore. The major agenda of this conference was the

institutionalization of non-diplomatic activities between the ROC and PRC.<sup>166</sup>

In the early 1990s, the ROC, while developing economic relations with the PRC, attempted to develop formal ties with international organizations, particularly the United Nations. Despite the acknowledgement of the potential opposition of the PRC,<sup>167</sup> the Foreign ministry of the ROC announced in May and June 1993 the application for "participation" in, rather than "rejoining" of, the United Nations<sup>168</sup> under the strategy of "one China two seats."<sup>169</sup> However, the ROC's application was rejected by the United Nations in late 1993.

These two strategies (the exchange of economic influences for international support; and the subordination of political claims to the enhancement of diplomatic network) of the ROC, it has been argued in this section, indicate the ROC's search for an official political identity in the international community, although the ROC was a de facto political entity and was recognized as a newly industrialized country by many countries.

To sum up, since 1949, the contemporary international contexts of the PRC and ROC have been undergone two major transformations. However, both countries have not settled relations with their former ideological enemies of the 1950s. The PRC still resists the interference of the US in the PRC's domestic political affairs. The ROC still searches for its official political identity in the international community.

### **3.6 SUMMARY AND CONCLUSION**

This chapter has described the contemporary domestic and international

contexts of the PRC and ROC (in which their higher education systems were institutionalized) between 1949 and 1993 through the discussion of the social construction of their state-supported central value systems, and through the examination of the contradictions emerged during the process of construction.

This chapter has argued that the contemporary domestic and international contexts of the PRC and ROC have undergone two major transformations. These transformations brought forth corresponding changes in domestic social structures in the PRC and ROC: for example, the incorporation of market forces in the PRC; and the introduction of Western form of democracy in the ROC. Both Chinese higher education systems were also affected by these two transformations. For instance, in the PRC, the private higher education sector was banned in the early 1950s and allowed to re-emerge in the early 1990s. In the ROC, university academics can form a public, though not an independent, voice against the state after the emergence of political pluralism in the late 1980s.

However, both countries, this chapter has argued, have not settled their domestic and international relations. Common to the anxieties of both countries in the last forty-four years was the search for cultural and political identity under pressures from within and without: for the PRC, the preservation of the CCP-controlled socio-political status quo; and for the ROC, the strive for the CNP-dominated socio-political structure and official international political identity.

Against this understanding of historical and contemporary contexts of the PRC and ROC, Chapter Four will examine how these two higher education

systems were used as part of national mobilization in resisting the formation of a "homogenous world" and in the creation of "homogenous national cultures." Chapters Five and Six will analyze the complexity of the international academic relations of the PRC and ROC, particularly in the importation of foreign science and technology for the purposes of economic modernization.

### Endnotes For Chapter Three

1. This thesis adopts Terry Eagleton's definition of legitimation. He defines legitimation as a "process by which a ruling power comes to secure from its subjects an at least tacit consent to its authority." See Terry Eagleton, *Ideology* (London and New York: Verso, 1991), p.54.
2. The "Common Programme" was adopted in 1949, and served as a temporary constitution in the PRC until 1954. In 1954, a formal constitution was promulgated. Later, it was revised in 1978, 1982 and 1993. The "Common Programme" and the 1954 version of the constitution of the PRC are in *Zhōnghuá Rénmín Gònghéguó Gòngtóng Gānglǐng Jí Xīnjiù Xiànfǎ* (The People's Republic of China: a Collection of the Common Programme, and New and Old Constitutions) (Hong Kong: Běifāng, 1970).
3. These principles were offered by Sūn in the 1910s as a prescription to save China from its economic backwardness and potential foreign military aggressions, and frequently invoked by Jiǎng Jièshí and his successors (Jiǎng Jīngguó and Lǐ Dēnghuī) after the CNP settled in Taiwan in 1949. See Yìxiān Sūn, *Sānmín Zhǔyì* (The Three People's Principles) (Taipei: Cheng Chung, Revised ed., 1978), p.1.
4. Chapter 1 of the Constitution of the ROC describes the Principle of Nationalism, particularly the sovereignty of the ROC and equality among the various racial groups in the ROC. Chapters 2-12 spell out the Principle of Democracy, i.e. the rights of the people in the ROC; Chapter 13 deals with the Principle of Livelihood, and spells out fundamental national policies like national defence, economy, and education. See *Zhōnghuámínguó Xiànfǎ* (Constitution of the Republic of China) (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1989); for the English translation, see *Constitution of the Republic of China* (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1988).
5. Taiwan was a colony ruled by the Dutch between 1650 and 1680, and by Japan between 1895 and 1945. Before 1949, there were about 6 million Taiwanese whose ancestors migrated into Taiwan from mainland China in the 17th century and particularly from its Fujian Province in the 19th century. At the founding period of the PRC and ROC in the early 1950s, a large influx of military personnel and people from mainland China into Taiwan took place. Between 1949 and 1950, about 1.2 million mainlanders (including about 400,000 soldiers) moved with the CNP from mainland China and settled in Taiwan. The population was increased by 29.2% from 6.09 millions in 1946 to 7.89 millions in 1951. See Shāo Shēng Chén, *Táiwān Yánjiū Cóng Kān: Táiwān*

*De Rénkǒu Biànniān Yu Shèhuì Biànniān* (Studies On Taiwan: Change of Population and Society in Taiwan) (Taipei: Lián Jīng, 1985), p.380; Huáisi Péng, *Táiwān Zhèngzhì Biànniān Sìshí Nián* (Political Changes of the Republic of China in the Past 40 Years) (Taipei: Zìlì Wǎnbǎo, 1987), p.70; and Rural Economics Division, Joint Commission on Rural Reconstruction, *Taiwan Agricultural Statistics, 1901-1965* (Taipei: Chinese-American Joint Commission on Rural Reconstruction, 1966), p.7. See also Guóxīng Zhāng, *Zìlì De Táiwān* (Self-Independent Taiwan) (Taipei: Dàoxiāng Press, 1990), pp.24-25.

6. In 1950, Jiǎng Jièshí was proud of maintaining the ROC as a member state of the United Nations, and attempted to convince his subjects to construct Taiwan as a model province of China and the base of recovering the territories lost to the CCP. See Jièshí Jiǎng, "Statement on the Resumption of Presidency, March 1, 1950," "Broadcast on November 13, 1953," and "The Evacuation of Hainan and Chusan" in *Selected Speeches and Messages of President Chiang Kai-Shek, 1949-52* (Taipei: Office of the Government Spokesman, 1952).
7. Article 1 in the *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), p.11.
8. See Article 2 of the 1978 Constitution, and the Preamble of the 1982 Constitution. Part of the 1978 Constitution is quoted in Mark Selden (ed.), *The People's Republic of China: A Documentary History of Revolutionary Change* (New York and London: Monthly Review, 1979), pp.689-695. See also *1982 Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), p.5.
9. The National People's Congress is constituted by people through "democratic elections." Their members are elected indirectly from conference representatives at different levels of the party hierarchy. The elected members claim to exercise the right, on behalf of the people, to legislate and to elect top state executives including the President and Premier. This kind of socialist democracy and legality was judged by the ruling elite of the PRC to be superior to the Western rule of law and capitalist democracy. See David Wen-Wei Chang, *China Under Deng Xiaoping: Political and Economic Reform* (Basingstoke, Hampshire: MacMillan Academic and Professional Ltd., 1988), p.50.
10. Ian Derbyshire, *Politics in China: From Mao to the Post-Deng Era* (Edinburgh: W & R Chambers Ltd., 1991), pp.8-9.
11. Franz Schurmann has argued that the CCP is an organized expression of the will of the proletariat and peasants, and represents the interests of the people, and hence dialectically exercises the control of society over the state. See Franz Schurmann, *Ideology and Organization in Communist China* (Berkeley and Los Angeles: University of California Press, 2nd and enlarged edition, 1968), pp.110-111.

12. Articles 3 and 4. See *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), pp.11-12
13. This Principle refers firstly to liberty, equity, and love; and secondly to the operation of the government by the people. See Yixiān Sūn, *Sānmín Zhǔyì* (Three People's Principles) (Taipei: Cheng Chung, Revised ed., 1978), pp.79, 97.
14. The separation of governmental powers was a modification of the Western tripartite division of powers (legislative, executive, and judicial) with the addition of two powers drawn from the Chinese tradition: the examination power and the "control" or supervising power. The examination Yuan would examine all aspirants for public office. The Control Yuan would supervise the conduct of officials and would have the power to impeach. Yixiān Sūn, *Guófù Quánjí* (The Complete Works of Sūn Yixiān) (Taipei: Party History Committee of the Central Committee of the Nationalist Party, Rev. ed., 1973), Vol.2, pp.154, 179, 184.
15. Robert G. Sutter, *Taiwan: Entering the 21st Century* (Lanham: University Press of America, 1988), p.56.
16. In the cases of the PRC and ROC, this thesis accepted two assertions of elite theory summarized by Kenneth Prewitt and Alan Stone. They suggest that regardless of the dominant political ideology and state organization, every country consists of a small number of people who rule and a majority of people who are the ruled. Moreover, the character of a country and its direction of national policy can be understood in terms of "the composition, structure, and conflicts of the ruling groups." See Kenneth Prewitt, and Alan Stone, *The Ruling Elites: Elite Theory, Power, and American Democracy* (New York: Harper & Row, 1973), p.5.
17. Articles 28-31 of the "Common Programme" in *Zhōnghuá Rénmín Gònghéguó Gòngtóng Gānglǐng Jí Xīnjiù Xiànfǎ* (The People's Republic of China: a Collection of the Common Programme, and New and Old Constitutions) (Hong Kong: Běifāng, 1970).
18. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 30 March, 1993.
19. Harmon Zeigler, *Pluralism, Corporatism, and Confucianism: Political Association and Conflict Regulation in the United States, Europe, and Taiwan* (Philadelphia: Temple University Press, 1988), p.139.
20. Articles 144-145. *Zhōnghuá mínguó Xiànfǎ* (Constitution of the Republic of China) (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1989), p.55; for the English translation, see *Constitution of the Republic of China* (Taipei: Government Information Office, Executive



- Yuan, 3rd ed., 1988), pp.44-45.
21. Kwoh-ting Li, *Economic Transformation of Taiwan, ROC* (London: Shepeard-Walwyn, 1988), p.79.
  22. Robert G. Sutter, *Taiwan: Entering the 21st Century* (Lanham: University Press of America, 1988), p.56.
  23. Articles 85 and 86. See *Zhōnghuá mínguó Xiànfǎ* (Constitution of the Republic of China) (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1989), pp.30-31; *Constitution of the Republic of China* (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1988), pp.24-25.
  24. Péng also suggested two reasons for the emergence of technocrats in the ROC. First, technocrats were needed in the period of US aid in the 1950s. Second, after successful economic development in the 1960s, their role became more important, and hence more professionals with higher degrees were recruited into the state government. See Huáisī Péng, *Táiwān Zhèngzhì Biànciān Sìshí Nián* (Political Changes of the Republic of China in the Past 40 Years) (Taipei: Zìlì Wǎnbǎo, 1987), p.44.
  25. National mobilization is defined as a process or means of directing people and material resources to achieve certain national goals delineated by political leaders on a purposive and large-scale basis.
  26. Terence Ball and Richard Dagger, *Political Ideologies and the Democratic Ideal* (New York: HarperCollins [sic.] Publishers Inc., 1991), p.9.
  27. Yìxiān Sūn, *Sānmín Zhǔyì* (The Three People's Principles) (Taipei: Cheng Chung, Revised ed., 1978), pp.1-2.
  28. Yìxiān Sūn, *Guófù Quánjí* (A Complete Collection of Works of Sūn Yìxiān) (Taipei: Central Cultural Service, Rev. ed., 1981), Vol.2, pp.2231.
  29. "All under heaven" is a traditional Chinese phrase referring to a country in which sincere and competent officials are elected; social relations are harmonious; people are responsible and contribute to the construction of the national economy; people are not selfish; and the society is so safe that there is no need to close the door of any house at night. See Jiǎng Jièshí, *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yánlùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.3, p.15.
  30. G. F. Hudson, Richard Lowenthal and Roderick MacFarquhar (Documented and Analysed), *The Sino-Soviet Dispute* (London: China Quarterly, 1961); and Robert G. Sutter, *China-Watch: Sino-American*

- Reconciliation* (Baltimore and London: John Hopkins University Press, 1978).
31. Cheng Chen, "Ten Years in Retrospect: A Report to the Third Session of the National Assembly, March 14, 1960," in *Free China Review*, Vol. 10, No. 4 (April 1960), p.55.
  32. *President Lee Teng-hui's Selected Addresses and Messages 1988* (Taipei: Government Information Office, 1989), p.20.
  33. This phase was used by Hú Yàobāng in his speech at the Twelfth National Congress of the Communist Party of China on 1 September 1982. See Hú Yàobāng, "Quánmiàn Kāichuàng Shèhuì Zhǔyì Xiàndàihuà Jiànshè De Xīn jǔmiàn" (To Create a New Phase for the Construction of Modernization of Socialism), in Research Centre of the Documents of the Central Committee of the Chinese Communist Party, *Shíyījiè Sānzhōng Quánhui Yǐlái Zhòngyào Wénjiàn Xuǎndú* (Selected Readings of Important Documents Since the Third Plenary Session of the Eleventh National People's Congress) (Beijing: People's Publishing House, 1987), pp.469-524, particularly p.493.
  34. In March 1979, Dèng Xiǎopíng proposed that socialist modernization could only be achieved by keeping to the Four Cardinal Principles: adhering to the Socialist road, upholding people's democratic dictatorship, the leadership of Communist Party, and Marxism-Leninism-Maoism. See Xiǎopíng Dèng, *Dèng Xiǎopíng Wénxuǎn, 1975 - 1982* (Selected Works of Dèng Xiǎopíng, 1975 - 1982) (Beijing: People's Publishing House, 1983), pp.150-151. For the English translation, see *Selected Works of Dèng Xiǎopíng (1975 - 1982)* (Beijing: Foreign Languages, 1984), p.172.
  35. For the sections of the Constitution revised in 1993, see *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 30 March, 1993.
  36. Hú Yàobāng restated the importance of the Four Cardinal Principles at the 60th Anniversary of the Chinese Communist Party on 1 July 1980; Zhào Zǐyáng emphasized the role of the Four Cardinal Principles in the growth of productive forces at the Thirteenth National Congress of the Chinese Communist Party on 25 October, 1987; and Jiāng Zémín regarded these principles as the foundation of the construction of China in the celebration of the 40th Anniversary of the People's Republic of China on 29 September 1989. See *Rénmín Rìbào* (People's Daily), 1 July 1980, p.2; *Documents of the Thirteenth National Congress of the Communist Party of China* (1987) (Beijing: Foreign Languages, 1987), p.73; and State Commission for Restructuring the Economy, *Zhōngguó Jīngjì Tìzhì Gǎigé 1990 Niánjiàn* (China Economic Systems Reform Yearbook, 1990) (Beijing: Gǎigé Publishing House, 1990), p.9.

37. It was Sūn Yixiān's message to the Chinese and quoted by Jack Gray, *Rebellions and Revolutions: China from the 1800s to the 1980s* (Oxford: Oxford University Press, 1990), p.233.
38. Robert G. Sutter, *Taiwan: Entering the 21st Century* (Lanham: University Press of America, 1988), p.56.
39. Adam Westoby, "Conceptions of Communist States," in David Held et al. (eds.), *States & Societies* (Oxford: Basil Blackwell and the Open University Press, 1985), pp.228-229.
40. Article 1 is: "The socialist system is the basic system of the People's Republic of China. Disruption of the socialist system by any organization or individual is prohibited." Article 35 is: "Citizens of the People's Republic of China enjoy freedom of speech, of the press, of assembly, of association, of procession and of demonstration." Article 36 is: "Citizens of the People's Republic of China enjoy freedom of religious belief. No state organ, public organization or individual may compel citizens to believe in, or not to believe in, any religion; nor may they discriminate against citizens who believe in or do not believe in, any religion." See *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), pp.11, 27-28.
41. Lowell Dittmer, "Tiananmen Reconsidered," *Pacific Affairs*, Vol.64, No.4 (Winter, 1991-92), p.529.
42. Samuel P. Huntington, "Political Development and Political Decay," edited by Claude E. Welch, Jr., *Political Modernization: A Reader in Comparative Political Change* (California: Wadsworth, 1967), pp.207-246.
43. Jièshí Jiǎng, "New Year Message, 1951," in his book, *Selected Speeches and Messages of President Chiang Kai-Shek, 1949-52* (Taipei: Office of the Government Spokesman, 1952).
44. *Yàzhōu Zhōukān* (Asian Week), 17-24 February, 1991, p.23.
45. Brian Davies, *Social Control and Education* (London: Methuen, 1976), p.27.
46. John A. Hall and G. John Ikenberry quoted Michael Mann's argument for the existence of "despotic" and "infrastructural" powers of a state. The "despotic" power of a state is its ability to act arbitrarily and free from constitutional constraint, while the "infrastructural power" is the ability to penetrate society and coordinate social relations within the territory of the state. See Hall and Ikenberry, *The State* (Stony Stratford, Milton Keynes: Open University Press, 1989), p.13.
47. Thomas B. Gold, *State and Society in the Taiwan Miracle* (New York: M. E. Sharpe, 1986), p.60; James D. Seymour, "Taiwan in 1987: A Year of Political Bombshells," *Asian Survey*, January 1988, p.74; Robert G. Sutter,

- Taiwan: Entering the 21st Century* (Lanham: University Press of America, 1988), p.55; and Simon Long, *Taiwan to 1993: Politics versus Prosperity* (London: Economist Intelligence Unit, 1989), p.7.
48. Jièshí Jiǎng, *Jiǎng Zǒngtǒng Jí* (A Collection of works of President Jiǎng Jièshí) (Yáng Míng Shān: Zhōnghuá Dàdiǎn, 1974), Vol.2, p.1898.
  49. *Far Eastern Economic Review: Asia Yearbook*, 1989, p.231.
  50. Simon Long, *Taiwan: China's Last Frontier* (Basingstoke, Hampshire: MacMillan, 1991), p.65.
  51. Franz Schurmann argued that except during the period of the Great Leap Movement (1958-60), Marxism-Leninism has been a pure ideology for the PRC since 1949. See his book, *Ideology and Organization in Communist China* (Berkeley and Los Angeles: University of California Press, 2nd and enlarged edition, 1968), p.104.
  52. Máo also emphasized the use of plain Chinese language to explain Marxism, and encouraged those who attempted to solve Chinese problems from the perspective of Marxism to relate Marxism to Chinese history and present conditions. See Stuart R. Schram, *The Political Thought of Mao Tse-tung* (New York and London: Frederick A. Praeger, Inc., 1963), pp.57-58; 112-115.
  53. Ian Derbyshire, *Politics in China: From Mao to the Post-Deng Era* (Edinburgh: W & R Chambers Ltd., 1991), pp.16-17.
  54. June Teufel Dreyer makes the same point. See her book, *China's Political System: Modernization and Tradition* (Basingstoke, Hampshire: MacMillan, 1993), p.7.
  55. Examples of such an equation can be found in *Zhōnghuá Rénmín Gònghéguó Guómín Jīngjì Hé Shèhuì Fāzhǎn Dìqīgè Wǔnián Jíhuà* (1986 - 1990) (The Seventh Five-Year Plan for Economic and Social Development of the People's Republic of China) (Beijing: People's Publishing House, 1986), pp.17, 179; *Zhōngguó Zhōngyāng Guānyú Zhìdìng Guómín Jīngjì Hé Shèhuì Fāzhǎn Shínián Guìhuà Hé Bāwǔ Jíhuà De Jiànyì* (The Ten-year Plan of the National Economy and Social Development and the Proposal On the Eighth Five-year Plan By the Chinese Communist Party) (Beijing: People's Publishing House, 1991), pp.14-24; the speech of the newly elected chairman of the Politburo in May 1993, summarized in *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 22 May, 1993, p.1; and the summary of the interview of the Secretary-General, Jiǎng Zémín, by the CNN in May 1993, in *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 24 May, 1993, p.1.

56. The Revision of the Constitution of the People's Republic of China (Zhōnghuá Rénmín Gònghéguó Xiànfǎ Xiūzhēngàn) was passed in the Eighth National People's Congress on 29 March, 1993. The Revision is in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 30 March, 1993.
57. June Teufel Dreyer, *China's Political System: Modernization and Tradition* (Basingstoke, Hampshire: MacMillan, 1993), p.7.
58. Muqiao Xue, and Hóng Mǎ (eds.), *Zhōngguó Jīngjì Niánjiàn*, 1990 (Almanac of China's Economy, 1990) (Beijing: Economics Management Press, 1990), Section III, p.261.
59. *Rénmín Rìbào* (People's Daily), 20 December, 1992.
60. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 13 and 14 October, 1992.
61. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 16 March, 1993.
62. June Teufel Dreyer, *China's Political System: Modernization and Tradition* (Basingstoke, Hampshire: MacMillan, 1993), p.150.
63. John Kohut, "One step forward ... one step back," in *South China Morning Post*, 13 March, 1993.
64. Carl Riskin, *China's Political Economy: The Quest for Development since 1949* (Oxford: Oxford University Press, 1991), p.41.
65. For details about the list of party cadres and their posts, see *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 29 March, 1993.
66. The other reason suggested by Kohut is that Dèng attempted to enhance Jiāng's role in foreign relations at the ideological level because of the global collapse of communism. See John Kohut, "One step forward ... one step back," in *South China Morning Post*, 13 March, 1993.
67. Xiǎopíng Dèng: "Yòng Zhōngguó De Lìshǐ Jiàoyù Qīngnián" (To Educate Youths with Chinese History), *Dèng Xiǎopíng Tóngzhì Lùn Jiàoyù* (Educational Thoughts of Dèng Xiǎopíng) (Beijing: People's Publishing House, 1990), p.168.
68. Kevin J. O'Brien, *Reform without Liberalization: China's National People's Congress and the Policies of Institutional Change* (Cambridge: Cambridge University Press, 1990), pp.4-7.
69. It should be noted that the emphasis on political reform in the ROC from the late 1980s did not mean it overlooked economic development. On the contrary, the ROC directed its economy from labour

intensiveness to capital and technology intensiveness. Despite different economic strategies in different stages, the basic economic structure – a planned capitalist economy – of the 1950s continued in the early 1990s.

70. See the "Temporary Provisions Effective During the Period of Communist Rebellion" in *Zhōnghuá mínguó Xiànfǎ* (Constitution of the Republic of China) (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1989), pp.67-72. The English version is in *Constitution of the Republic of China* (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1988), pp.55-57.
71. When the CNP moved its seat to Taipei in 1949, 1,576 members of the National Assembly came to and resumed their duties in Taiwan. The members of the National Assembly had not been re-elected for more than four decades, but they, instead of the people, had the right to elect the president. Up to 1990, only 920 members at the age of over 80 remained in the National Assembly. New members were likely to be recruited, but not elected, into the National Assembly only when the old members died. See Sōngrán Wēng, "Táiwān Zhèngzhì Tìxì Fēnxī" (An Analysis of the Political System of Taiwan) in *Mínzhǔ Dàxué Tōngxùn* (The Bulletin of the Democracy University), No. 6 (5 August 1990), pp.3-4.
72. In the early 1970s, the entire population of the ROC consisted of 2% aborigines of Malay origin, 74% Minnanese, 12% Kejia people, and 12% mainlanders. The Minnanese and Kejia people were those whose ancestors emigrated from mainland China to Taiwan in the 19th century. See Leo Moser, "Taiwan, China and the World," in Yung-Hwan Jo (ed.), *Taiwan's Future* (Tempe, Arizona: Arizona State University, 1974), p.98.
73. Yung Wei observed that before the early 1970s, mainlanders spoke Mandarin which was adopted by the CNP as the official language of the ROC, resided mainly in urban areas, and were employed mainly in governmental, educational, military, and professional sectors. In contrast, native Taiwanese spoke their dialects (Minnan or Kejia), predominated in small towns and villages, and were employed in commercial, agricultural and fishery sectors. See Yung Wei, "Political Development in the Republic of China on Taiwan: Analyses and Projections," in Yung-Hwan Jo (ed.), *Taiwan's Future* (Tempe, Arizona: Arizona State University, 1974), p.26.
74. Harmon Zeigler, *Pluralism, Corporatism, and Confucianism: Political Association and Conflict Regulation in the United States, Europe, and Taiwan* (Philadelphia: Temple University Press, 1988), p.158.

75. John Kaplan, *The Court-Martial of the Kaohsiung Defendants* (Berkeley, California: Institute of East Asian Institute, University of California, 1981), p.5.
76. Harmon Zeigler, *Pluralism, Corporatism, and Confucianism: Political Association and Conflict Regulation in the United States, Europe, and Taiwan* (Philadelphia: Temple University Press, 1988), p.140.
77. *Far Eastern Economic Review: Asia Yearbook*, 1977, p.305.
78. Guóxīng Zhāng, *Zìlì De Táiwān* (Self-Independent Taiwan) (Taipei: Dàoxiāng Press, 1990), p.28.
79. *Far Eastern Economic Review: Asia Yearbook*, 1977, p.305
80. "The Per-Capita Wealth of the Taiwanese is HK\$ 440,000," in *Míng Bào* (Ming Pao Daily), 8 April, 1993, p.22.
81. Shing-Yuan Sheng, and Tin-Yu Ting, "The Party Competition Between the Kuomintang and the Opposition: The Case of the 1983 and 1986 Elections in Taiwan," in *Journal of National Chengchi University*, Vol.59 (1989), pp.34-35.
82. *Far Eastern Economic Review: Asia Yearbook*, 1977, p.305.
83. Robert G. Sutter, *Taiwan: Entering the 21st Century* (Lanham: University Press of America, 1988), p.58.
84. Robert G. Sutter, *Taiwan: Entering the 21st Century* (Lanham: University Press of America, 1988), p.60.
85. Hung-mao Tien, "Taiwan's Evolution Toward Democracy: A Historical Perspective," in Denis Fred Simon, and Michael Y. M. Kau (eds.), *Taiwan: Beyond the Economic Miracle* (New York: M. E. Sharpe, 1992), pp.3-23.
86. Hungdah Chiu, "Constitutional Development and Reform in the Republic of China on Taiwan," in *Issues and Studies*, Vol. 29, No. 1 (January 1993), p.22.
87. Julian Baum, "Local Leverage," in *Far Eastern Economic Review*, 9 January, 1992, p.28.
88. In the 1991 election of the National Assembly, the CNP won 254 out of 325 seats. In the 1992 election of Legislative Yuan, the CNP won 102 out of 161 seats; whereas the opposition party, Democratic Progressive Party, got 50. In other words, the CNP won 78.2% of the seats in the National Assembly in 1991, and 63.3% in Legislative Yuan in 1992. For the 1991 election, see *Central Monthly*, January 1992, p.6. For the 1992 election, see Huá Shī, "Táiwān Mínhǔ Jiànggòu Chéngxíng" (The

Formation of Democratic Structure in Taiwan), in *Jiǔshí Niándài* (The Nineties), January 1993, p.58.

89. The survey was to compare people's political attitudes towards the CNP and the opposition party, the Democratic Progressive Party (DPP) in Taiwan. The survey indicated that the CNP had more support from the people than the DPP did. On the party's capacity to maintain economic prosperity, 57.0% of the respondents supported the CNP and 23.5% had faith in the DPP. 58.7% respondents believed that the CNP can maintain the political stability of Taiwan; and only 15.2% trusted in the DPP. On the party's ability to bring forth political reform, the CNP had 47.7% support; while the DPP got 33.9%. See Chia-cheng Lin, "A General Survey of Political Attitudes in Taiwan," in *Soochow Journal of Sociology*, No. 1 (March 1992), pp.53-93.
90. Yung Wei, "Political Development in the Republic of China on Taiwan," in Hungdah Chiu (ed.), *China and the Question of Taiwan: Documents and Analysis* (New York: Praeger, 1973), pp.28-73.
91. In 1987, the percentages of Taiwan-born Chinese in the Cabinet and Central Committee of the CNP were respectively 40 and 48. See Huáisi Péng, *Táiwān Zhèngzhì Biànciān Sìshí Nián* (Political Changes of the Republic of China in the Past 40 Years) (Taipei: Zìlì Wǎnbǎo, 1987), p.106.
92. Local-born Taiwanese occupied only 17% (220 out of 1300) seats in the National Assembly; and 14% (21 out of 150) in the higher government posts. Only 8 (25%) of the presidents of 28 higher education institutes were native Taiwanese. See Guóxīng Zhāng, *Zìlì De Táiwān* (Self-Independent Taiwan) (Taipei: Dàoxiāng Press, 1990), p.25.
93. *Zhōngyāng Rìbào* (Central Daily News, international edition), 6 February, 1993.
94. *Zhōngyāng Rìbào* (Central Daily News, international edition), 20 March, 1993.
95. The phrase "lean to one side" was used by Máo in his speech, "On the People's Democratic Dictatorship," in commemoration of the 28th anniversary of the Chinese Communist Party in China on June 30, 1949. The "one side" was the USSR as indicated by the context of the speech. See Zédōng Máo, *Máo Zédōng Xuǎnjì Dìsìjuàn* (Selected Works of Máo Zédōng) (Beijing: People's Publishing House, 2nd ed., 1991), Vol.4, pp.1469, 1473, 1481.
96. Zédōng Máo, *Máo Zédōng Xuǎnjì Dìsìjuàn* (Selected Works of Máo Zédōng) (Beijing: People's Publishing House, 2nd ed., 1991), Vol.4, p.1471.



97. Zédōng Máo, *Máo Zédōng Xuǎnjì Dìwǔjuàn* (Selected Works of Máo Zédōng) (Beijing: People's Publishing House, 1977), Vol.5, pp.289-292.
98. See Yu San Wang, "Foundation of the Republic of China's Foreign Policy," *Foreign Policy of the Republic of China on Taiwan: An Unorthodox Approach* (New York: Praeger, 1990), p.10.
99. The "Resist America and Aid Korea" campaigns in 1951 and 1960, and protests against US intervention in Vietnam in 1960s were some examples of the PRC's demonstrations against the US and imperialism, which were permitted by the PRC government. For a detailed list of the PRC's antforeign movements and the number of people involved in the 1960s and 1970s, see Kuangsheng Liao, *Antiforeignism and Modernization in China* (Hong Kong: Chinese University Press, 1990), pp.271-324.
100. In 1963, Yugoslavia was labelled by the authorities of the PRC as a polluted Communist country, and its reform was called Yugoslav revisionism and equated with the product of the US imperialist policy. According to the Běijīng government, Yugoslavia allowed the existence of private enterprises and private possession of capital during the reform. More important was that Yugoslavia was accused of being a vassal of the US because Yugoslavia received US\$ 54.6 billion American aid and signed a treaty with the US. See the Editorials of the *Rénmín Rìbào* (People's Daily), 1 and 14 June, 1958.
101. In 1967, Jiǎng Jièshí repeated his insistence that those who wanted to demolish the Three People's Principles would be devastated by them. In 1986, Jiǎng Jīngguó claimed that the Three People's Principles as national policy were better than communism. Jiǎng Jīngguó believed that the Three People's Principles were good national policies for the people, and that communism was repressive and suppressive. According to him, the problems of China could be solved only when the Three People's Principles are realized in China. See Jì-Píng Wǔ (ed.), *Dàzhōng Zhìzhèng Guāng Zōngtǎng Jiǎnggōng Bǎinián Dànchén Jìniàn Zhuānjí: Guāng Zōngtǎng Hòu Jiàoyù Sīxiǎng* (The Late President Jiǎng's Thought on Education) (Taipei: Cheng Chung, 1986), p.113. See also Jīngguó Jiǎng, *Jiǎng Zōngtǒng Jīngguó Xiānshēng 75th Nián Yánlùnjí* (The Speeches of President Jiǎng Jīngguó, 1986) (Taipei: Government Information Office, Executive Yuan, 1987), pp.6-7, 10, 123.
102. Chi-yun Chang, *The Rebirth of the Kuomintang: The Seventh National Congress* (Taipei: China Cultural Service, n.d.), pp.63-64.
103. The anti-Communist Kuomintang Platform was adopted by the CNP on 18 October, 1952. There were thirty-six articles which were grouped under seven headings: political affairs, foreign policy, military programme, economic programme, education, social service, and overseas Chinese affairs. All these sections reflected the rival attitude

- of the CNP towards the CCP and Communism. See Articles 1, 8 and 34. The English translation of the Platform is in Chi-yun Chang, *The Rebirth of the Kuomintang: The Seventh National Congress* (Taipei: China Cultural Service, n.d.), pp.95-101.
104. Szu-yin Ho, "The Republic of China's Policy Towards the United States, 1979-1989," in Yu San Wang (ed.), *Foreign Policy of the Republic of China on Taiwan: An Unorthodox Approach* (New York: Praeger, 1990), p.35.
  105. Máo's words, "we [the Chinese] must cooperate and we must have American help," were quoted in Michael Schaller, *The United States and China in the Twentieth Century* (New York/Oxford: Oxford University Press, 1979), p.100.
  106. At the level of the Soviet government, China was one of the major targets for communist revolution. On November 24, 1918, Stalin wrote an article, "Don't Forget the East," and argued that the mission of the Soviet Communist Party was to wake up the oppressed peoples of the East and to summon them to a struggle with imperialism. In the second Congress in Moscow in July 1920, China was mentioned as one of the main target countries. The Comintern held its Second Congress in Moscow from July 17 to August 7, 1920. A number of theses were adopted and collected in *The Comintern, Theses and Statutes of the III Communist International* (Moscow: Publishing Office of the Communist International, 1920), pp.68-70. The part concerning China was quoted by Henry Wei in his book, *China and Soviet Russia* (Princeton, New Jersey: D. Van Nostrand Company, Inc., 1956), pp.46-47.
  107. Máo announced the PRC's alliance with the USSR in the first Chinese People's Political Consultative Conference in 1949. See *Zhōngguó Rénmín Zhèngzhì Xiéshānghuìyì Dìyījìè Quántǐ Huìyì Zhōngyào Wénjiàn* (The Main Documents of the Plenary Session of the First Term of the Chinese People's Political Consultative Conference) (Guǎngzhōu: Xīnhuá, 1950), p.4.
  108. The PRC also labelled Soviet "socialist imperialism" as the "number one enemy" of peace. See Michael Schaller, *The United States and China in the Twentieth Century* (New York/Oxford: Oxford University Press, 1979), p.163.
  109. Krushchev was accused by the *Rénmín Rìbào* (People's Daily) on September 6, 1963 of putting forward the thesis of "peace transition" to achieve international security by making friends with the United States in the USSR's Twentieth Congress in 1956. The Soviet government was also accused of making no distinction between enemies and friends and leading the Soviet people astray. The whole accusation was summed up in the seventh point of the twenty-five points of a letter to the Soviet government. The letter was approved by the Central Committee of the Chinese Communist Party on June 14, 1963, and delivered to Moscow

on the following day, and simultaneously published in the *Rénmín Ribào*. Moreover, the USSR did not support the PRC militarily. The PRC charged the USSR with its failure to use "politicomilitary pressure" of its missiles to guard against American imperialism and to help the PRC liberate Taiwan and resolve the Sino-Indian border crises in 1959 and 1962. The PRC also objected to the Soviet hegemonist aggression against Czechoslovakia in August 1968, and the initiation of military conflicts with the PRC over Chenbao Island in Ussuri in March 1969. The English translation of the *Rénmín Ribào* of September 1963 can be found in Alan Lawrance, *China's Foreign Relations Since 1949* (London: Routledge & Kegan Paul, 1975), pp.70-73; the twenty-five points were summarized in Peter Jones and Sian Kevill (compilers), *China and the Soviet Union, 1949-84* (Harlow, Essex: Longman, 1985), pp.31-38. See also Harold C. Hinton, *Government & Politics in Revolutionary China: Selected Documents, 1949 - 1979* (Wilmington, Delaware: Scholarly Resources Inc., 1982), p.103. For the border crises, see the Editorial "The Truth about how the Leaders of the CPSU have Allied themselves with India against China" of *Rénmín Ribào* (People's Daily) November 2, 1963. See also A. Doak Barnett, *Uncertain Passage: China's Transition to the Post-Mao Era* (Washington, D. C.: Brookings Institution, 1974), p.261.

110. Premier Zhōu Ēnlái acknowledged major differences in ideology, the PRC-ROC issue, and some foreign policies, and perceived anti-hegemony as the common ground of the "Five Principles of Peaceful Coexistence." However, he signed with US President Richard Nixon the Shanghai Communiqué on February 21, 1972. On September 25, Zhōu also signed another treaty with Japan to establish diplomatic, economic and cultural relations. See Zhōu Ēnlái, "The Gate to Friendly Contacts Between China and the United States has Finally been Opened" and "The Chinese and Japanese Peoples should live in Friendship From Generation to Generation" in *Selected Works of Zhōu Ēnlái* (Beijing: Foreign Languages, 1981), Vol.2, pp.499-503.
111. *Time* (February 5, 1979), pp.14-15.
112. *Zhōnghuá Rénmín Gònghéguó Dìliùjiè Quánguórénmín Dìyījiè Quánguórénmín Dàibìǎodàhuì Huìyìwénjiàn* (First Session of the Sixth National People's Congress, June 1983) (Hong Kong: Joint Publishing Co., 1983), p.56.
113. "A Summary of the Government Report by Premier Lǐ Péng," in *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 17 March, 1993.
114. In his letter, dated June 26, 1925, Jiǎng Jièshí asked General Bliukher to send Russian advisors to help train 100,000 Chinese people so that they could form a competent army within three to six months. The letter is in Wilbur C. Martin and Julie Lien-ying How, *Missionaries of Revolution: Soviet Advisors and Nationalist China, 1920 - 1927* (Cambridge,

Massachusetts: Harvard University Press, 1989), pp. 502-505.

115. The "Sino-Soviet Treaty of Friendship and Alliance and Related Agreements," signed on 14 August 1945, signified the USSR's recognition of the Nationalist government led by Jiǎng Jièshí as the only government of China, and guaranteed Soviet economic assistance to the nationalist government in its national re-construction. Article 6 of the Treaty stated that the High Contracting Parties agreed to render each other every possible economic assistance in the post-war period with a view to facilitating and accelerating reconstruction in both countries and to contributing to the cause of world prosperity. However, the Soviet government signed another treaty, the "Treaty of Friendship, Alliance and Mutual Assistance Between the Soviet Union and the People's Republic of China," with the PRC on 14 February, 1950. The Treaty recognized the Chinese communist government as the only government of China and redirected Soviet economic help to the PRC. The wording of the USSR's treaty with the PRC was similar to that with the ROC: "to develop and consolidate economic and cultural ties between the Soviet Union and China, to render each other every possible economic assistance, and to carry out the necessary economic co-operation." The first treaty is printed in Henry Wei, *China and Soviet Russia* (Princeton, New Jersey: D. Van Nostrand Company, Inc., 1956), pp. 334-335; the second one is in Harold C. Hinton, *Government & Politics in Revolutionary China: Selected Documents, 1949 - 1979* (Wilmington, Delaware: Scholarly Resources Inc., 1982), pp.8-9.
116. In this decade, the PRC-USSR alliance and the Korean War forced the US President, Harry S. Truman, to reconsider the military strategic position of Taiwan which was described by General Douglas MacArthur as an "unsinkable aircraft carrier" in East Asia. Truman ordered his Seventh Fleet to patrol the Taiwan Straits and to curb any potential military attack by the PRC on Taiwan. See Immanuel C. Y. Hsü (ed.), *Readings in Modern Chinese History* (New York: Oxford University Press, 1971), p.762.
117. According to Szu-yin Ho, the ROC's American policy was constrained by America's indifference to the ROC as a legitimate player in its dealings with the PRC, by the US's increasing preference for the PRC, and by the ROC's longtime economic dependence on the US, especially on international trade with the US. The US President Jimmy Carter, regarding the ROC as an incompetent partner in Asia, terminated the Mutual Security Treaty, and immediately signed another Taiwan Relations Act. In Carter's understanding, the Act enabled "the American people and the people on Taiwan to maintain commercial, cultural, and other relations without official Government representation and without diplomatic relations." See Yu San Wang, "Foundation of the Republic of China's Foreign Policy," and Szu-yin Ho, "The Republic of China's Policy Toward the United States," in Yu San Wang (ed.),

*Foreign Policy of the Republic of China on Taiwan: An Unorthodox Approach* (New York: Praeger, 1990), respectively in p.9 and pp.34-35. See also *Public Papers of the Presidents of the United States, Jimmy Carter, 1979* (January 1 to June 22, 1979) (Washington, D.C.: U.S. Government Printing Office, 1980), Book 1, pp.640-641.

118. According to the "Taiwan Relations Act," the American Institute in Taiwan was authorized to administer to or take from any person an oath, affirmation, affidavit or deposition, to act as provisional conservator of the personal estates of deceased United States citizens, and to assist and protect the interests of American people. The Coordination Council for North American Affairs for the ROC was established in Washington. The Council also handled the two nations' ambassadorial duties in an unofficial way. See Section 7 of the "Taiwan Relations Acts," in *U.S. Statutes at Large*, Vol.93 (1979), pp.14-21; and Gene T. Hsiao and Michael Witunski (eds.), *Sino-American Normalization and its Policy Implications* (New York: Praeger, 1983), pp.468-475.
  
119. In October 1987, the Ministry of Foreign Relations announced that ROC citizens were allowed to go to the USSR, Cuba, East Europe to attend international academic conference and sports competitions (though not to the PRC and to those regions controlled by it). People from non-antagonistic communist countries were also allowed to come to the ROC. See *Wàijiāobù Shēngmíng Yu Gōngbào* (Declaration and Announcement of the Ministry of Foreign Relations, July 1987 - June 1988), p.44; and *Zhōngyāng Rìbào* (Central Daily News), 30 October, 1987.
  
120. In the US, the first session of the 81st Congress passed the "Bill to Provide Economic, Financial and Other Aid to China" on 19 February, 1949, and amended it on 28 March 1949. The amendment to the Act explicitly re-asserted the American position: "It should be made perfectly clear that there is no intention of using this provision to assist any government in China which is dominated by the Chinese Communists." The Bill and the Report are in Richard D. Challener, *Economic Assistance to China and Korea, 1949 - 1950* (New York: Garland Publishing, Inc., 1979), pp. 232-239 and 249-250.
  
121. In February 1949, the Soviet government promised to grant the PRC credits amounting to US\$ 300,000,000 at a very favorable interest rate of 1% per annum according to an agreement along with the Treaty of Friendship, Alliance and Mutual Assistance between the PRC and the USSR. Article 1 of the Agreement recorded the Soviet government's promise of granting the PRC credits. The credits (equivalent to 8.57 million ounces of fine gold at that time) were granted in the course of five years from January 1, 1950, and in the form of equipment and materials including electric power stations, metallurgical and engineering plants. The credits were to be repaid in the form of

deliveries of raw materials, tea, and US dollars. In 1954, the USSR gave the PRC a second loan in term of credits worth 520 million rubles and promised to help build 15 extra industrial plants on top of the previously agreed 141 plants. Two years later, the USSR granted another loan valued at 2,500 million rubles to the PRC and helped build another 55 industrial enterprises. For the agreement, see Harold C. Hinton, *Government & Politics in Revolutionary China: Selected Documents, 1949 - 1979* (Wilmington, Delaware: Scholarly Resources Inc., 1982), pp. 10-11; and Henry Wei, *China and Soviet Russia* (Princeton, New Jersey: D. Van Nostrand Company, Inc., 1956), pp. 346-347; about the loans, see Jan-Ingvar Löfstedt's quotation from the *People's China* (February, 1957) in his *Chinese Educational Policy: Changes and Contradictions 1949-79* (Stockholm, Sweden: Almqvist & Wiksell International, 1980), pp.79-80; 85.

122. By the end of 1957, 211 Chinese major industrial enterprises were reported to have been helped with Soviet technical aid and supplied with complete sets of equipment. See "Sino-Soviet Cooperation" *Beijing Review*, No.29 (29 April, 1958), p.20; and Kuangsheng Liao, *Antiforeignism and Modernization in China* (Hong Kong: Chinese University Press, 1990), p.123.
123. Eight Five-Year Plans for constructing the economy were launched after 1953. Along with the Eighth Five-Year Plan (1991-1995), a Ten-Year Plan (1991-2000) was passed by the National People's Congress in April 1991. For the Ten-Year Plan, see *Zhōngguó Zhōngyāng Guānyú Zhìdìng Guómín Jīngjì Hé Shèhuì Fāzhǎn Shínián Guīhuà Hé Bāwǔ Jīhuà De Jiànyì* (The Ten-year Plan of the National Economy and Social Development and the Proposal On the Eighth Five-year Plan By the Chinese Communist Party) (Beijing: People's Press, 1991).
124. The central departments managed enterprises and unified the distribution of materials, although two attempts to devolve authority on local governments, not on production units, were made in 1958-59, and 1970. The more centralized the state hierarchy, the more enterprises and the more kinds of materials were placed under the control of central departments. In the period of Sovietized First Five-Year Plan (1953-1957), the number of industrial enterprises was increased from 2,800 in 1953 to 9,300 in 1957; while that of kinds of materials was increased from 227 in 1953 to 532 in 1957. In the retrenchment period of the Great Leap Forward Movement (1958-1960), the numbers were respectively reduced to 1,200 and 285. However, during the Cultural Revolution, the numbers were correspondingly increased to an unprecedented level: 11,000 and 579 respectively. Later, the numbers were greatly reduced in 1970. The number of kinds of materials under unified distribution was lowered to 200. See the report by the State Commission for Restructuring the Economy in *Zhōngguó Jīngjì Tìzhì Gǎigé Shínián* (Ten Years for Economic System Reform of China)

(Beijing: Jīngjì Guǎnlǐ Publishing House and Gǎigé Publishing House, 1988), p.486.

125. Guangyuan Yu (ed.), *China's Socialist Modernization* (Beijing: Foreign Languages, 1984), p.83.
126. Many defects of the existing economic structure were mentioned in the National People's Congress in 1978. Owing to the practice of over-centralization, enterprises had not enough economic power to decide and manage according to their production conditions. Mandatory national plans also neglected the individual relations between production units and dynamic national needs. Moreover, vitality and competition were lacking in the national economy because the centralized system depended heavily on the administrative hierarchy and neglected value-regulation and market mechanisms. Another defect was the inertia of people. As a result, the national economic growth was slowed. The phenomenon of dàguōfàn (sharing food from the same big pot) was common. Enterprises were assured of investment and purchase of their goods by the state, but bore no responsibility for production output; labourers got the same wage, and did not fear dismissal nor expect to gain extra material rewards. See Section IV and V of Zhào Ziyáng's Report delivered at the Thirteenth National Congress of the Communist Party of China on 25 October 1987. The report is in the *Documents of the Thirteenth National Congress of the Communist Party of China* (1987) (Beijing: Foreign Languages, 1987), pp.30-60.
127. According to Gordon White, the Yugoslav model was a market socialism in which state intervention was less and individual state enterprises had full decision-making and management power; the Hungarian model was one with "a relatively weak parametric state and higher enterprise autonomy." In 1984, Shigeru Ishikawa argued that the economic models adopted by the PRC were unclear. In 1985, Chen Yu-Chen suggested that the PRC adopted a "mixed model" which was based on seven principles: insistence on socialist principles; throwing out the Soviet economic structure; imitation of the Hungarian economic model; absorption of the management model of American enterprises; learning from Japanese development experience; learning from Taiwanese economic success; and integration of indigenous practical characteristics. Cui Diànchāo in 1991 suggested that the Chinese model was similar to the Hungarian one. However, Zhào Ziyáng had already denied that the reformed economy was similar to any other socialist countries in 1987. See Shigeru Ishikawa, "China's Economic System Reform: Underlying Factors and Prospects," and Gordon White, "Changing Relations Between State and Enterprise in Contemporary China: Expanding Enterprise Autonomy," in Neville Maxwell and Bruce McFarlane (eds.) *China's Changed Road to Development* (Oxford: Pergamon, 1984), pp.9-20, 43-60; Yu-Chen Chen, "An Assessment of

Economic Reform in Mainland China Since 1979" Chung-Hua Institute for Economic Research, *Modern Economic Study Series*, No.8, Taipei, Taiwan, January 1985, esp. Chapter 5, pp.133-63, p.138; Diànchǎo Cuī, "Chóngsù Zhōngguó Jīngjì" (Reconstruction of China's Economics) in Diǎnqīng Xú, Dīngmíng Léi, and Xīn Zhāng (eds.), *Zhōngguó Jīngjì Gǎigé: Fēnxī, Fǎnxīng, Qiánzhān* (China's Economic Reform: Analysis, Reflections and Prospects) (Hong Kong: Chinese University Press, 1991), p.65; and *Documents of the Thirteenth National Congress of the Communist Party of China* (1987) (Beijing: Foreign Languages, 1987), p.12.

128. Zhào Zǐyáng insisted that the reformed economy of the PRC was still a planned economy, not capitalist, and that only minor commodities, agricultural supplement products and services were freely regulated by the market. On the other hand, he suggested that within the planned economy there were two types of plans: mandatory and guiding. The number of mandatory plans governing the general direction of the national economy should be reduced, while that of the guiding plans concerning economic effectiveness and daily operation of production units should be increased. Further, the guiding plans were regulated by economic means, and the mandatory plans must also take economic rules, especially value mechanism, into consideration. See Zhào's speech, "Guānyú Jīngjì Tǐzhì Gǎigé Zhōng Sāngè Wèntí De Yìjiàn" (Opinion on Three Questions Concerning the Reform of Economic System) which was delivered in his meeting with Dèng Xiǎopíng, Hú Yàobāng and two other senior party leaders on 9 September, 1984. The Opinion is in the State Commission for Restructuring the Economy, *Zhōngguó Jīngjì Tǐzhì Gǎigé Shínián* (Ten Years for Economic System Reform of China) (Beijing: Jīngjì Guǎnlǐ Publishing House and Gǎigé Publishing House, 1988), pp.40-42.
129. Article of the 1982 Constitution spells out that "The state practises planned economy on the basis of socialist public ownership. It ensures the proportionate and coordinated growth of the national economy through overall balancing planning and the supplementary role of regulation by the market." This stance was re-emphasized in the "Central Committee's Decision on Reform of the Economic Structure" which was adopted in October, 1984. Later, the stance was reasserted by Party Secretary-General, Zhào Zǐyáng, in the Thirteenth National Congress of the Communist Party of China on 25 October 1987; by Jiāng Zémín, in the 40th Anniversary of the Chinese Communist Party on 29 September 1989; and by Premier Lǐ Péng in his report which was passed by the Fourth Session of the Seventh National People's Congress on 9 April 1991. See *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), p.17; *Documents of the Thirteenth National Congress of the Communist Party of China* (1987) (Beijing: Foreign Languages, 1987), pp.31-32; State Commission for Restructuring the Economy, *Zhōngguó Jīngjì Tǐzhì Gǎigé Shínián* (Ten Years for Economic System Reform of China) (Beijing: Jīngjì Guǎnlǐ Publishing House and



- Gǎigé Publishing House, 1988), p.47; State Commission for Restructuring the Economy, *Zhōngguó Jīngjì Tìzhì Gǎigé 1990 Niánjiàn* (China Economic Systems Reform Yearbook, 1990) (Beijing: Gǎigé Publishing House, 1990), p.9; and *Zhōngguó Zhōngyāng Guānyú Zhìdìng Guómín Jīngjì Hé Shèhuì Fāzhǎn Shínián Guǐhuà Hé Bāwǔ Jíhuà De Jiànyì* (The Ten-year Plan of the National Economy and Social Development and the Proposal On the Eighth Five-year Plan By the Chinese Communist Party) (Beijing: People's Publishing House, 1991), p.15.
130. Jan S. Prybylia, "Economic Development in the People's Republic of China, 1985-86," quoted by David Wen-Wei Chang, *China Under Deng Xiaoping: Political and Economic Reform* (Basingstoke, Hampshire: Macmillan Academic and Professional Ltd., 1988), p.265.
  131. Péng Lǐ, "Zhèngfǔ Gōngzuò Bàogào" (Government Administration Report to the First Meeting of the Eighth National People's Congress on 15 March, 1993) in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 2 April, 1993.
  132. "A Statistical Report of Economic and Social Development of the People's Republic of China by the State Statistics Bureau," in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 20 February, 1993.
  133. In February 1993, the PRC failed its application for the entry into the GATT because of the PRC's restrictions on foreign investment. One month later, the Chinese Minister of Foreign Economic Relation and Trade made some proposals for domestic economic changes to satisfy the working commission of GATT. The proposals involved agricultural and pricing policies, distribution of foreign exchange, implementation of a unified trade system, foreign trade management, and inspection product quality. See "GATT to Ensure Stable Growth, Official Says," in *Ming Pao Daily*, 17 March, 1993.
  134. In April, the PRC authorities also decided that the foreign exchange policy would be adjusted to satisfy the requirements of the GATT. The adjustments would include the reduction of state control over the foreign exchange market and the reduction of the gap between the official and market exchange rates. See "Re-entry into the GATT and Foreign Exchange," in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 8 April, 1993.
  135. American aid to the ROC amounted to US\$ 1.48 billion between 1951 and 1970. This amount was equal to 50% of American aid to Korea between 1953 and 1965. American aid to Korea amounted to US\$ 2.94 billions between 1953-1965. See *Taiwan Statistical Data Books, 1991* (Taipei: Council for Economic Planning and Development, 1991), p.247; and Jichāng Zhào, *Měiyuán De Yùnyòng* (The Use of American Aid) (Taipei: Lián Jīng, 1985), p.258.

136. F. A. Lumley, *The Republic of China under Chiang Kai-Shek: Taiwan Today* (London: Barrie & Jenkins, 1976), p.61.
137. According to Zhào Jìchāng, industry, mining and electrical plants were the major targets of US aid to the ROC. According to Neil H. Jacoby, two-thirds of US capital assistance went to infrastructure and agriculture. The public sector shared four-fifths of the assistance. American aid, Anthony Y. C. Koo, was to help stabilize soaring prices by financing the government budget deficit, by contributing to infrastructure construction, and by covering the import surplus. See Jìchāng Zhào, *Měiyuán De Yùnyòng* (The Use of American Aid) (Taipei: Lián Jīng, 1985), p.35; Neil H. Jacoby, *U.S. Aid to Taiwan: A Study of Foreign Aid, Self-help and Development* (New York: Praeger, 1967), pp.174-175; and Anthony Y. C. Koo, "Economic Development of Taiwan," in Paul K. T. Sih (ed.), *Taiwan in Modern Times* (New York: St. John's University Press, 1973), p.406.
138. Dietrich Rueschemeyer and Peter B. Evans, "The State and Economic Transformation: Towards an Analysis of the Conditions Underlying Effective Intervention," in Peter B. Evans, Dietrich Rueschemeyer and Theda Skocpol (eds.), *Bringing the State Back In* (New York: Cambridge University Press, 1985), pp.44-77.
139. Huáisī Péng, *Táiwān Zhèngzhì Biànyǎn Sìshí Nián* (Political Changes of the Republic of China in the Past 40 Years) (Taipei: Zìlì Wǎnbào, 1987), p.81.
140. The national economic plans of the ROC were the Four-Year Plans for the periods: 1953-1956, 1957-1960, 1961-1964, 1965-1968, 1969-1972, 1973-1976, and 1982-1985; the Six-Year Plans for the periods: 1976-1981, and 1991-1996; and the Ten-Year Plans: 1971-1980, and 1980-1989.
141. In order to improve the productivity of the agricultural sector, the government of the ROC actively initiated a series of nationwide measures: land reform; improvement of irrigation systems, chemical fertilizer and seed; and the promotion of the mechanization of agriculture in 1950s and 1960s. To develop the industrial sector, the government envisaged a shift from rural industry, to light industry, to heavy industry and then to high technology over the forty years.
142. Zhèn Sūn, "Mínshēng Zhǔyì Yánjiū" (The Study of the Principle of Livelihood) in *Sānmín Zhǔyì Yánjiū* (The Study of the Three People's Principles), edited by the Center of Education of Public Administration and Business Management, National Chengchi University (Taipei: National Chengchi University, 1982), pp.770-775.
143. Thomas B. Gold, *State and Society in the Taiwan Miracle* (New York: M. E. Sharpe, 1986), p.122.

144. *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 20 July, 1992; and Philip Liu, "No Turning Back," *Free China Review*, Vol.44, No.7 (July 1992), pp.54-56.
145. *China Daily*, 14 July, 1993, p.2.
146. It was estimated that mainland workers earned as little as US\$40 to US\$60 a month, one-tenth of their Taiwan counterparts. See *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 20 July, 1992; and Philip Liu, "No Turning Back," *Free China Review*, Vol.44, No.7 (July 1992), pp.54-56.
147. Economic cooperation between the PRC and ROC was basically conducted in the following form: the ROC invested capital in the PRC; whereas the PRC offered science and technology to Taiwanese investors. There were two ways of cooperation between the PRC and ROC. First, Taiwanese merchants and PRC universities established enterprises in the PRC. Second, Taiwanese technological companies proposed research themes and provided funds; whereas the Department of Technology in the PRC coordinated its research institutes to conduct such researches. See "Jiāoliú Kējì, Zàofú Liǎng'àn" (The Exchange of Science and Technology would Benefit Both Sides of the Taiwan Straits), in *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 20 April, 1992, p.5.
148. Other reasons include special privileges including tax exemption and reduction offered to Taiwanese investors by the PRC; sharing of common language (Mandarin) between people in the PRC and ROC; and the advantage of geographic proximity. See Tzung-ta Yen, "Taiwan Investment in Mainland China and Its Impact on Taiwan's Industries," in *Issues & Studies*, Vol. 27, No. 5 (May 1991), p.10.
149. The Cultural Revolution was intended to eradicate all systems of exploitation so as to eliminate the differences between intellectuals and workers and peasants, between town and country, and between mental and manual labourers. See the Editorial of the *Guāngmíng Rìbào* (Guangming Daily), 1 June, 1966.
150. The term, "uprising," first appeared in the Editorial of the *Rénmín Ribào* (People's Daily), 26 April, 1989. Dèng Xiǎopíng expressed this view on 9 June 1989, five days after the suppression of the 1989 student movement in Tiananmen Square. Part of the speech is in the State Commission for Restructuring the Economy, *Zhōngguó Jīngjì Tǐzhì Gǎigé 1990 Niánjiàn* (China Economic Systems Reform Yearbook, 1990) (Beijing: Gǎigé Publishing House, 1990), pp.3-5.
151. *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 30 March, 1993.

152. American President George Bush announced the sale of 150 F-16A/B air fighters (worth US\$ 4 billions) to the ROC during his re-election campaign on 2 September 1992. Bush's announcement was condemned as American hegemony and interference in the peaceful unification of the PRC and ROC by the Central Committee of the National People's Congress two days later. *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 5 September 1992.
153. Two months later, France agreed to sell to the ROC 60 Mirage-2000E fighting warplanes and 1,500 missiles. See *Míng Bào* (Ming Pao Daily), 19 November, 1992.
154. "History spells trouble in French connection," in *South China Morning Post*, 24 December, 1992, p.12.
155. "The PRC Cannot Avoid Economic Pressure," the Editorial of the *Next Magazine*, No. 163 (23 April, 1993), p.1.
156. In February 1993, the spokesman of President Bill Clinton re-asserted that the renewal of the MFN status to the PRC would depend on its adherence to the past agreements on human rights, trade, and weapon sales. See *Míng Bào* (Ming Pao Daily), 24 February, 1993.
157. *Míng Bào* (Ming Pao Daily), 24 March, 1993.
158. The pictures are in *Zǐjīng* (Bauhinia Magazine), No. 30 (March 1993), pp.58-60.
159. In May 1993, the PRC's Vice-Premier, Qian Qichen, visited Germany, Italy, the Netherlands and Sweden to strengthen economic cooperation; whereas Executive Vice-Premier Zhu Rongji held a series of talks with the senior officials of Canada. See Chris Yeung, "MFN move unlikely to affect relations," in *South China Morning Post*, 29 May, 1993.
160. "Answers of Premier Lǐ Péng and Vice-Premiers to Journalists' Questions Concerning the Domestic and Foreign Policy of China," in *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 1 April, 1993.
161. The figures were displayed in the Memorial Exhibition Hall of Sūn Yǐxiān in Taipei in October, 1993.
162. According to President Lǐ, 25 countries have established 30 offices in the ROC to facilitate mutual contact and communication. *President Lee Teng-hui's Selected Addresses and Messages 1988* (Taipei: Government Information Office, 1989), pp.32, 43.
163. Yuan-Li Wu and Kung-Chia Yeh, "Taiwan's External Economic Relations," *Growth, Distribution, and Social Change: Essays on the Economy of the Republic of China* (Baltimore: School of Law, University of

Maryland, 1978), pp.173-216.

164. *Quójiā Jiànshè Liù Nián Jìhuà (1991 - 1996) Dì Yī Cè: Zǒngtǐ Jīngjì Fāzhǎn Mùbiāo* (Six-Year National Development Plan, (1991 - 1996), Vol. 1: Development Objectives of the Whole Economy) (Taipei: The Executive Yuan, 1991).
165. "President Lee: Asia-Pacific needs collective security system to resolve disputes peacefully," in *Free China Journal*, 2 April, 1993, p.7.
166. See the "Illustration of the Background of Wang-Koo Conference" released by the Executive Yuan of the ROC. The "Illustration" is in *Zhōngyāng Rìbào* (Central Daily News, international edition), 20 March, 1993.
167. President Lǐ Dēnghuī had already expressed in 1989 the idea that "the ROC, as a sovereign country, must have full rights to participate in international organizations and to enhance its friendly relations with foreign countries." In his report concerning the ROC's reentry into the United Nations to the Legislative Yuan in March 1993, the Foreign Minister of the ROC, Qián Fù, suggested that the ROC can apply to the United Nations for becoming a full member, a representative or an observer. However, Qián noted the opposition of the PRC in the United Nations, and advised the Taipei authorities to wait for one or two years more. The phrases of President Lǐ is quoted by Michael Yung-mao Kau, "The ROC's New Foreign Policy Strategy," in Denis Fred Simon, and Michael Y. M. Kau (eds.), *Taiwan: Beyond the Economic Miracle* (New York: M. E. Sharpe, 1992), p.245. See also "Taiwan Re-enters the United Nations," in *Míng Bào* (Ming Pao Daily), 1 April, 1993.
168. Foreign Ministry of the ROC, *Zhōnghuámínguó Cānyú Liánhéguó* (The Participation of the Republic of China in the United Nations) (Taipei: Foreign Ministry, 1993).
169. The Taipei authorities acknowledged that if the ROC applies for membership in the United Nations, the application needs to be discussed in the Security Council and the PRC as one of the five council nations would veto the application. The ROC would apply for "participation" in the activities of the United Nations. This application would be reviewed by the Steering Committee of the United Nations, not its Security Council. See "Return to the United Nations, Set 'One Nation Two Seats' as Goal," *Zhōngyāng Rìbào* (Central Daily News, international edition), 12 June, 1993, p.1.

## CHAPTER FOUR

### THE CULTURAL TASK OF HIGHER EDUCATION IN THE PRC AND ROC

#### **4.1 PURPOSE AND ARGUMENT**

The purpose of this chapter is to describe the relations between higher education, the state and the central value system in the PRC and ROC between 1949 and 1993. The chapter will firstly highlight the educational policy relating to cultural transmission in the PRC and ROC, the revolutionary ideals and moral virtues to be transmitted, and the institutionalization of the central value system in their higher education systems between 1949 and the late 1980s. This chapter will secondly examine educational changes in cultural transmission in these two Chinese higher education systems between the late 1980s and 1993.

This chapter argues that despite the supplementary revision of domestic and international relations from the late 1970s (which was discussed in Chapter Three) the higher education systems of the PRC and ROC were more "closed" in the dissemination of state-supported central values than their changing societies between 1949 and 1993. In other words, as compared with the societal changes (economic reform in the PRC and political reform in the ROC), both Chinese higher education systems have made relatively less change in the curriculum and transmission structure for the dissemination of central values to students in the last forty-four years.

This chapter further argues that the resistance to change in political and

ideological education in the higher education systems of the PRC and ROC was a result of cultural and revolutionary legacies. Like Imperial China, the ruling elites of the PRC and ROC accepted the domination of a single value system over the education system; emphasized moral education as a way to create socio-political cohesion amongst people; and linked higher education tightly with the state and the central value system. Moreover, the current ruling elites of these two Chinese countries still rely on the moral claims used by the first-generation leaders to justify their political leadership: the basic revolutionary ideals and moral values prescribed by the first-generation leaders were propagated in the respective Chinese higher education systems through the transmission structures created by these leaders.

The description of cultural transmission in these two Chinese higher education systems is divided into two periods: between 1949 and the late 1980s, and between the late 1980s and 1993. The late 1970s (during which partial revisions in the domestic and international relations of the PRC and ROC took place) are not selected as a dividing line because, as suggested in the argument of this chapter, there were no significant differences before and after the 1970s. The late 1980s are chosen firstly because significant student movements took place in the PRC and ROC; and secondly because the period saw the beginning of the global downfall of communism. The decline of communism in the world has implications to the PRC and ROC in the early 1990s. The PRC needs to struggle for the preservation of Chinese socialism against this trend; whereas the ROC can no longer use anti-communism as an easily available stance, but must rely mainly on the preservation of Chinese

traditional culture to define its international political identity. This chapter will first examine cultural transmission in these two Chinese higher education between 1949 and the late 1980s.

#### **4.2 CULTURAL TRANSMISSION IN HIGHER EDUCATION OF THE PRC AND ROC BETWEEN 1949 AND THE LATE 1980S**

This section argues that the ruling elites of the PRC and ROC utilized the transmission of the central value system in higher education as a means to maintain socio-political cohesion and hence their political leadership between 1949 and the 1980s.

The detailed categories presented in sequence in this section are cultural mission statements of the PRC and ROC; their lists of revolutionary ideals and moral values; and their institutionalization of the central value system. Cultural mission statements for education in the PRC and ROC are selected because they spell out the general cultural task of education. The lists of revolutionary ideals and central moral values in both Chinese countries are chosen because these lists reflected the contents of cultural transmission through education. Institutional measures indicated how the PRC and ROC ensured the transmission of official values, and the defence against the infiltration of foreign values which were deemed challenging to political leadership. The cultural mission statements for education in the PRC and ROC will be discussed first.

##### **4.2.1 Central Value Systems and Cultural Mission Statements for Education in the PRC and ROC**

This thesis argues that the ruling elites of the PRC and ROC, like the emperors



in Imperial China who used royal decrees to legitimize the domination of Confucianism in classical higher education, incorporated the transmission of the central value system as a cultural task of education into their constitutions. Some articles of the constitutions of the PRC and ROC became the cultural mission statements for education; and formed a legal basis for the justification of the relations between education, the central value system and the state.

In the PRC, the ruling elite legitimized education as a state channel to transmit the official socialist worldviews prescribed in the constitution. The 1982 constitution indicated that education should be set within the framework of socialist systems which were led by the CCP, and was guided by "Marxism-Leninism and Máo Zédōng Thought."<sup>1</sup> The constitution also stated that education was a socialist means to build up a socialist society in modern China.<sup>2</sup> The philosophy of education in the PRC had been expressed concisely in the 1957 Máo Zédōng's cultural mission statement for education. The aim of socialist education was

to enable those who receive education to develop morally, intellectually, and physically, and to become labourers with both socialist consciousness and culture.<sup>3</sup>

This formula was incorporated into the constitution,<sup>4</sup> and has become a general policy of education.<sup>5</sup>

After 1957, the cultural mission statement of Máo was used by the ruling elite of the PRC in different contexts, but with a common emphasis -- the preservation of social ideals. During the Cultural Revolution (the period in which politics took command), the formula was upheld,<sup>6</sup> but led to the

destruction of the entire education system. During the secondary transformation (marked by the opening up of the PRC to the West and the introduction of market forces) from the late 1970s, the Máo formula was also cited on important occasions and in state reports. In particular, the 1985 educational reform plan stressed the ideological functions of schools as "sturdy bulwarks against the corrosive influences of capitalist and other decadent ideas and firm bases for the building of a socialist civilization of a high cultural level."<sup>7</sup> The 1992 educational reform plan emphasized the training of "successors" to carry on the tasks of constructing a socialist society.<sup>8</sup>

As in the PRC, the ruling elite of the ROC, after moving to Taiwan in 1949, legitimized the transmission of their official values through education in Taiwan. Jiǎng Jièshí assumed that national survival depended on education which was the prime mover of national strength.<sup>9</sup> He argued that in order to facilitate the use of education as a national instrument, a common belief system – the Three People's Principles – was necessary to invoke a common emotion and discipline among the people.<sup>10</sup> Jiǎng also suggested that the cancellation of the courses on the Three People's Principles in 1947 was a cause for the loss of mainland China to the CCP in 1949.<sup>11</sup>

Against this background, the CNP under the leadership of Jiǎng used the constitution as a legal basis for the transmission of the party's worldview through education. Since 1946, the realization of the Three People's Principles has been spelt out as the objective of educational and cultural development in Article 158 of the constitution of the ROC:

Education and culture shall aim at the development among the citizens of the national spirit, the spirit of self-government,

national morality, good physique, scientific knowledge and the ability to earn a living.<sup>12</sup>

The Ministry of Education of the ROC, despite the institutionalization of opposition in the political structure and despite the establishment of relations with socialist countries in the late 1980s, admitted that the Three People's Principles were guidelines in the formulation of education policy in the ROC.<sup>13</sup>

Thus, in the PRC and ROC in the last forty years, the cultural mission statements were not changed significantly and education, as in Imperial China, was linked by the government with the central value systems. Also like Imperial China, both contemporary Chinese countries, as discussed in the next section, stressed moral education.

#### **4.2.2 Education for National Morality in the PRC and ROC**

This section argues that the PRC and ROC, like Imperial China, had their own list of central values, including revolutionary ideals and moral virtues, to be transmitted in their higher education (and other levels), but both lists served the same function – to help students to conform to the socio-political status quo.

The ruling elite of the PRC singled out a set of revolutionary ideals and moral values for socialist moral education which was supposed to help train people with socialist consciousness and to mould the society with socialist spiritual civilization. Socialist moral education, according to the PRC authorities, means education of "morality of thought" and "political

education."<sup>14</sup> The young people were identified by the state as a target for the inculcation of socialist values and norms.<sup>15</sup>

Under Máo's rule, a set of socialist values to be upheld was listed in the agenda of moral education in the PRC. Highly advocated in civic education for the training of "new socialist citizens"<sup>16</sup> to fight against feudal and capitalist ideas were, for example, the socialist constitutional ideals of the "five-loves" (the love of the motherland, of the people, of labour, of science, and of socialism),<sup>17</sup> "five-isms" (patriotism, collectivism, internationalism, communism, and dialectic and historical materialism), and Máo's thoughts.

After Máo's death, the CCP under the leadership of Dèng Xiǎopíng also accepted the "five-loves" and "five-isms" as part of national ideals.<sup>18</sup> After 1985, the CCP emphasized "three-isms" (patriotism, collectivism, and socialism) instead of "five-isms."<sup>19</sup> To deal with the potential Western socio-political influences on the society of the PRC after its opening up to the West in the late 1970s, Dèng highlighted a particular list of "communist virtues": the love of the motherland, of the people, of science, and of public properties; and to fight wisely and courageously with enemies and bad social members.<sup>20</sup> Regarding the construction of socialism with Chinese characteristics, Dèng also encouraged people to possess "four-haves" (to have morality, communist or socialist ideals, culture and discipline),<sup>21</sup> and "three goods" (good in ideology, study, and health).<sup>22</sup>

This thesis further argues that the higher education system of the PRC, despite oscillations between the priorities of professional training and political transmission, was consistently perceived as a means to produce politically

reliable personnel in the PRC. Students were supposed to be trained to be "red" and "expert" under the leadership of Máo and Dèng. "Red" refers to political reliability; "expert," to vocational competence. To be "expert" was to master the basic theory and training provided in higher education. The minimum standard of "redness" for a student was to love the socialist motherland, to support the leadership of the CCP, and to serve the people. A higher standard of "redness" was to build up a communist worldview, to adopt the theory of practice as the sole truth, to support the socialist democratic system, to integrate the intelligentsia with the proletariat, to integrate theory with practice, and to grow collectively.<sup>23</sup>

Stress was put on both political reliability and vocational competence in the higher education of the PRC in the founding period and after the introduction of market forces in the late 1980s. Between these two periods, the balance was tipped to "expertness" during the First Five-year Plan (1952-1957), in the early 1960s,<sup>24</sup> and during the opening up to the West and the emergence of market forces in the early 1980s. Emphasis was put on political training during the Great Leap Forward Movement (1958-1960).<sup>25</sup> The Cultural Revolution (1966-1976) pushed "redness" to its extreme. After major student movements, for example in the "Capitalist Liberation" in 1986-1987<sup>26</sup> and the Tiananmen massacre in 1989,<sup>27</sup> ideological education was strengthened.

As in the PRC, the ruling elite of the ROC designated a particular set of socio-political values, but under the Principles of Nationalism and Democracy, so as to help students to support the leadership of the CNP. Jiǎng

Jièshí, following the revolutionary ideals of Sūn Yǐxiān, argued that, to save China from extinction it was necessary to restore its national self-confidence which was rooted in the cultural heritage of the past.<sup>28</sup> The most fundamental function of education was, according to Jiǎng, to cultivate students' personality, to change their moral qualities, and to correct their behaviours so that the moral and political qualities of the society may be changed and the nation may be saved.<sup>29</sup> Therefore, education through the Principle of Nationalism, according to the Ministry of Education, has the central task of ensuring the continued existence of the Chinese people and its cultural heritage.<sup>30</sup>

Unlike the PRC, the list of moral virtues of the ROC was drawn widely from the Confucian tradition. The relation of education to the Principles of Nationalism and Democracy was Confucian in essence: personal and social ethics interacted in a disciplined society. This was reflected in the national and school motto in the education system. Before moving to Taiwan in 1949, Jiǎng set eight Confucian virtues (loyalty, filialty, benevolence, love, trustworthiness, faithfulness, and peace) as the parameters of the national spirit of Republican China. He designated another set of four Confucian values (propriety, righteousness, integrity, and honour) as a common motto of all schools and as a common moral standard for the cultivation of all students.

In contrast to the PRC which was marked by oscillations between "redness" and "expertness," the ruling elite of the ROC stressed both ideological and political education and professional training in higher education. The transmission of these twelve Confucian values to students in

Taiwan was perceived by Jiǎng in the 1950s and 1960s as a "spiritual weapon" to resist the Chinese and Russian communists.<sup>31</sup> Article 32 of the "Kuomintang Platform" in the 1952 National Assembly permitted the state to guide the thought of youths and to help them establish patriotic organizations so as to ensure victory in their fight against communism and Soviet imperialism.<sup>32</sup> In 1960, the Ministry of Education indicated that higher education was to be used to train specialized personnel in various fields for national construction and to prepare them for the recovery and reconstruction of mainland China.<sup>33</sup> In the late 1960s, the CNP organized a national campaign, "Revival of Chinese Culture," to highlight the destruction of Chinese culture in the Cultural Revolution in the PRC. In 1993, integrity was singled out by the Ministry of Education as a virtue to be promoted in secondary education. This was supposed to help rectify the social atmosphere in a newly industrialized society.

Although the PRC and ROC had different lists of revolutionary ideals and moral values drawn from different sources, both lists encouraged both sets of students to accept the values, attitudes and worldviews of the first-generation leaders, and to exhibit behaviours which were acceptable within the socio-political norms defined by the respective ruling elites. In the PRC, both Máo and Dèng advocated the primacy of the leadership of the CCP. In 1956, Máo argued that the domination of the CCP over other parties in the political arenas was to suppress potential anti-revolutionary activities, to resist imperialism, and to construct socialism in the PRC.<sup>34</sup> In the early 1980s, Dèng suggested that the ultimate criterion of discipline was to support faithfully and

implement resolutely the policy of the party and the state.<sup>35</sup> The criterion was a socialist version of the Confucian promotion of loyalty to the emperor.

In the ROC, education through the Principle of Democracy was to help create social cohesion amongst people. Jiǎng promoted the idea of organized democracy and disciplined freedom. He also argued that in order to be liberated, people had to obey the laws and be responsible so that the nation could achieve independence and self-strengthening. The knowledge and technology of higher learning could be achieved only in a law-abiding society.<sup>36</sup> This is a nationalist version of Confucian social ethics. This version was claimed by the Ministry of Education to be promoted in the education system of the ROC in the 1970s and 1980s.<sup>37</sup>

Therefore, the ruling elites of the PRC and ROC, like the emperors in Imperial China, adopted their revolutionary ideals and selected moral values as a guiding principle in the formulation of education policy, and transmitted these socio-political values through education to students. These values were believed by the authorities of these two Chinese countries to help students conform to the social order, and support the existing political leadership. How the PRC and ROC utilized higher education to help students conform to the socio-political status quo will be discussed in the next section.

#### **4.2.3 Institutional Transmission of Central Values in Higher Education of the PRC and ROC**

This section argues that between 1949 and the late 1980s, the states of the PRC and ROC established in their higher education systems institutional measures to guard against the infiltration of conflicting values (which were regarded as



challenging the existing political leadership) from abroad, and to ensure the transmission of the respective Chinese central value system to students. The measures included the creation of an environment in which official beliefs were propagated; the establishment of a party-controlled administrative structure; and the imposition of ideological courses as academic requirements.

The environment in which students were to study is selected because it indicated the external relations of individual higher education institutions with other social institutions at home and abroad. The administrative structure is chosen because it was the political arena in which the struggles between the university administration and party authorities took place. Ideological courses are selected because they represented the curricular and extracurricular activities relating to cultural transmission.

#### **4.2.3.1 Creation of an Environment for Cultural Transmission**

The first institutional measure for cultural transmission in the higher education systems of the PRC and ROC between 1949 and the late 1980s was the creation of an environment which was marked by the domination of the central value system over rival ones.

During the founding period, the ruling elite of the PRC created a socialist environment in which Chinese socialism was transmitted and particularly capitalist influences were minimized. In 1947, nearly 44% of 125 tertiary institutions were private, and many of them were run by American churches.<sup>38</sup> The private sector of higher education was abolished, and educational and political sovereignty from foreign and local private ownership

was resumed in the "Three-Antis Movement" between 1949 and 1951. As in the former USSR,<sup>39</sup> higher education institutions were nationalized, i.e. their ownership was transferred to the state or collectivity.

In particular, the takeover of foreign-related institutions in the PRC was intended to eliminate capitalist influence from other institutions abroad on socialist higher education in the PRC. The Deputy-Minister of Education, Qián Jùnrù, explicitly admitted that the takeover of American-subsidized schools was "not a simple administrative job, nor a matter of funds, but a most important political undertaking."<sup>40</sup> The taking-back of higher education from foreigners involved education of teachers and students about "American cultural aggression" in discussion meetings; the replacement of foreign administrative and teaching staff with the Chinese; and the removal of the religious curriculum from normal teaching.<sup>41</sup> By the end of 1951, 21 universities linked with foreign churches were nationalized.<sup>42</sup> All higher education institutions were owned, run, and thereby controlled, by the state. This lasted up to the late 1980s after which the Beijing authorities allowed local Chinese, and encouraged foreigners, to run private higher education institutions.

As in the PRC, the ruling elite of the ROC created a nationalist environment for the transmission of the Three People's Principles in the higher education system of the ROC during the founding period. In this period, the CNP and those emigrants from mainland China had to deal with three cultural problems: the cultural legacy left by the Japanese; the existing two major dialect groups (Minnanese and Kejia people) who could not speak Mandarin;

and the infiltration of communist ideas, particularly from the PRC.

To deal with the Japanese cultural legacy, the ROC's government in Taiwan regained educational and political control from the Japanese over Taiwanese higher education (and other levels) between 1945 and 1949. All institutions were taken over by the Ministry of Education of the ROC in 1945. The name of the Taihoku Imperial University was changed to the National Taiwan University. The Japanese staff was gradually replaced by those who came to Taiwan from mainland China with the CNP in 1949. The Japanese language as a medium of instruction was banned at all levels of education.

To deal with the local Taiwanese culture, the CNP as an external political force (which moved its seat to Taiwan in 1949) adopted a "colonial" language policy: the local people who were the majority of the population had to use the language of an external political power as the official language. After 1945, the CNP adopted Mandarin, rather than one of the major dialects, as the official language of instruction. Local dialects were banned in all levels of schools. (In 1993, the learning of dialects was allowed to be incorporated as an elective subject in primary and secondary schools.<sup>43</sup>) The CNP explained its language policy as a means to fight against the Japanese cultural legacy and to provide a common language for different dialect groups in Taiwan.<sup>44</sup> However, between the late 1940s and the early 1950s, the local-born Taiwanese did not speak Mandarin, and could not follow the lectures given by professors from mainland China. New students, rather than mainland professors, were required to learn Mandarin and Chinese literature several hours per week.<sup>45</sup>

To deal with the infiltration of communist ideas, the ROC banned the transmission of communism in all social institutions (including higher education) in 1949. Before the lifting of martial law in 1987, books by communists were cleared from the shelves in libraries and bookshops. Clubs for the study of the books written by Marx were banned, and students who organized the clubs were arrested.<sup>46</sup>

Therefore, the ruling elites of the PRC and ROC created an environment for higher education within the respective publicly monolithic socio-political contexts (discussed in Chapter Three) to minimize further influences on students from rival forces at home and from abroad. The ruling elites of the two Chinese countries also established political forces within individual higher education institutions to monitor their observance of the policies of the respective parties.

#### **4.2.3.2 Establishment of a Party-controlled Administrative Structure**

The second institutional measure to ensure the transmission of central values in the higher education systems of the PRC and the ROC was the establishment of a party-controlled administration hierarchy.

In the manner of the Soviet model,<sup>47</sup> the CCP indirectly controlled higher education institutions through the creation of a vertical administration network. The educational hierarchy included, from the top, the CCP, the State Council, the Ministry of Education (State Education Commission after 1985) together with other ministries, local authorities of education or other ministries, and tertiary institutions under the Ministry of Education or under

other ministries. The top-down vertical administrative relations were required in the party's constitution to be strictly observed.<sup>48</sup> As indicated in the four directives issued between 1950 and 1953, personnel management and the planning of teaching had to be done in accordance with the detailed instructions of the Ministry of Education (See Appendix 4.1).<sup>49</sup>

The CCP also regulated higher education institutions directly through the creation of a vertical hierarchy within them. This hierarchy was intertwined in the power relations of university administration and party forces within individual institutions. In other words, there were two contending power centres – university administration and party organs – within the hierarchy. The purposes of the establishment of these complicated relations were to ensure that Party policies were implemented by the university authorities and daily university administration was conducted within the socio-political norms prescribed by the CCP. As a result, party forces dominated the university administration authorities.

The university administration authorities formed a major core of power, and comprised, from the top, the presidents and their deputies, directors of colleges, and department heads. However, their appointments were controlled mainly by the CCP. For example, the presidents of higher education institutions were appointed by the CCP, and could be removed from their office of presidency at anytime by the CCP. The removal of the president of the Běijīng University for political reasons immediately after the Tiananmen Square Incident in 1989 was one of many examples in the higher education system of the PRC. Moreover, deputy presidents were usually party

secretaries of local university party committees, and were directly accountable to the CCP. They were also heads of another power contending group in individual higher education institutions.

The establishment of party organs as another core of authority in individual higher education institutions was also a mark of the integration of university administration and party powers. These organs included university party committees, local Communist Youth Leagues, and the student unions under the leadership of the university party committees. In the arenas relating to the ideological and political affairs in higher education, these organs and the presidents of higher education institutions were jointly supervised by the Ministry of Propaganda of the Central Committee of the CCP, and the Ministry of Education of the State Council which directed these affairs.<sup>50</sup>

Among these party organs, university party committees were the most powerful. In 1961, these committees were designated as the highest internal administrative organs in higher education institutions. The functions of these committees were to implement properly the Party's general line, and policies; to accomplish the tasks delegated by higher Party or state organs; to consolidate ideological and political work; and to administer the personnel of individual institutions.<sup>51</sup> The Central Committee of the CCP admitted in the 1985 education reform that the power of these university party committees was so great that they practised "monopolizing the management of everything" in higher education institutions.<sup>52</sup>

Between 1985 and 1989, the "president-responsibility system" was allowed to emerge, and presidents were given more, but still limited,

managerial powers.<sup>53</sup> At the same time, the local party secretaries were given the duties to "strongly support the principals or presidents in the execution of their functions and powers, and to guarantee and supervise the implementation of the Party's various principles and policies and the fulfillment of the state's education plans." Only a small number (e.g. about 10% in 1985) of higher education institutions, as noted by Du Ruiqing, were chosen to test the president-responsibility system, and only some powers were transferred from the university party committees to presidents.<sup>54</sup> However, since the Tiananmen Square Incident in 1989, the pilot scheme of the separation of powers between the university administration and party committees in individual institutions, as noted by Cheng Kai-ming, has been suspended.<sup>55</sup> Therefore between 1949 and the late 1980s, the higher education system of the PRC was mainly dominated by party forces outside and on campuses.

As in the PRC, the CNP dominated the administrative affairs of higher education institutions in the ROC through the Ministry of Education.<sup>56</sup> The Ministry of Education appointed the presidents of public and private universities, assessed the qualifications of their teachers, and controlled their admission quota and tuition fees. Moreover, university presidents were usually the executive heads of the institutions, and at the same time the chairpersons of party committees on campus. The control of the Ministry of Education over higher education in the ROC can be reflected in a common saying, "there is only one university -- the University of the Ministry of Education."<sup>57</sup>

At the administrative level within the campus, the president of a tertiary institution in the ROC had full rights to appoint professors as Deans of Studies, Deans of Discipline, and Deans of General Affairs. The president could also appoint the director of a college in the university structure, and recruit teaching staff including professors, associate professors, lecturers and associate lecturers.<sup>58</sup>

In other words, the administrative structure in higher education of the ROC comprised a single power core: the Ministry of Education and the presidents. This was different from the PRC which had two power cores: the administration and party forces. However, both structures served the same function: the insurance of the implementation of the educational policies of the ruling party.

The CNP-controlled administration hierarchy in higher education institutions of the ROC lasted for nearly 40 years. This practice was challenged by the academics' refusal of the selection and appointment of their presidents by the Ministry of Education in the early 1990s. This issue will be discussed later in this chapter. This thesis continues to examine how the CCP and CNP controlled the direct transmission of respective central values to students through the formal and informal curricula of higher education.

#### **4.2.3.3 Imposition of Ideological Requirements on Students**

The third institutional measure to disseminate official central values in the higher education systems of the PRC and ROC, this thesis suggests, was the imposition of ideological courses as compulsory academic requirements for



admissions and graduation.

Admissions mechanisms, this thesis argues, served as the first screening filter of the higher education systems in the PRC and ROC to accept those students who had passed the ideological and political entrance requirements set by respective ruling parties.

In the PRC, since 1952, unified entrance examinations for undergraduates have served as a major admissions mechanism for recruiting students. In order to be qualified for admission, students of the PRC were required to pass papers on Chinese socialism, and to give examiners the answers expected by the CCP.<sup>59</sup> In the period of the Second Five-Year Plan (1958-1962), priority was given to "political quality" over "academic quality" in the selection of candidates.<sup>60</sup> Between 1971 and 1976, the examination system was criticized as a "testing method of the bourgeoisie" and was canceled. Instead of passing ideological papers, students' political "conditions" (e.g. children of workers and peasants) and local party's recommendations became important admission criteria.<sup>61</sup> After 1976, the passing of examinations relating to Chinese socialism was resumed as an admission criterion. Therefore, despite the change in form and despite the variation in importance, political and ideological criteria were used in the selection of students for higher education studies in the PRC in the past four decades.

Unlike the PRC, the ROC consistently used entrance examinations to test students' knowledge of official beliefs. Since 1954, joint university entrance examinations have been an essential mechanism to select students. The paper on the subject, "Three People's Principles," was compulsory for all

candidates.<sup>62</sup> In other words, the passing of this subject became a necessary, though not the most important, admission criterion for students to pursue higher education studies in the ROC. Those who had not mastered the required level of knowledge about the central value system were denied the opportunity to study in higher education of the ROC.

After admission, students were required to fulfill a series of formal and informal curricular requirements to qualify for graduation in the PRC and ROC. In particular, intensive transmission of the central value system took place in compulsory courses: theoretical and practical.

In the PRC, the contents of the theoretical courses comprised two basic ingredients. First of all, students had to learn political thought. Mao's thought, in addition to Marxism and Leninism, was formally incorporated as a core part of the ideological and political curriculum in 1961. After 1978, Deng's speeches concerning the building up of socialism with Chinese characteristics were also incorporated as reading materials for students. Moreover, the policies of the CCP, and development of the PRC and the world were included.<sup>63</sup> From 1980, the courses in the "History of the Chinese Communist Party," "Political Economy," and "Marxist Philosophy" were compulsory for all undergraduates.

For these theoretical ideological studies, the PRC also ordered the university authorities to allocate a considerable portion of learning time for ideological and political education. In 1978, the Ministry of Education stipulated that the portion of learning varied with the field of study: about 10% of the total class time for students in science and engineering fields, and

about 20% for students in the field of humanities.<sup>64</sup> Postgraduate students were also required to spend 100 - 140 hours a year on Marxist theories.<sup>65</sup>

In the ROC, compulsory theoretical studies included courses on the "Thoughts of Sūn Yīxiān" (which was formerly called the "Three People's Principles"<sup>66</sup>), "The Constitution of the ROC," and the CNP's version of "Chinese Modern History."<sup>67</sup> Among them, the "Thoughts of Sūn Yīxiān" was most controversial amongst academics.

The course on the "Thoughts of Sūn Yīxiān", this thesis argues, served two basic purposes: the transmission of Sūn Yīxiān's ideals; and the propagation of Jiǎng Jièshí's message of anti-communism and recovering mainland China. This course carried four units: 2 units a term and 2 hours a week.<sup>68</sup> The classes were perceived by the CNP as part of a cultural and ideological war between the Three People's Principles and Communism, and as psychomilitary preparation for the recovery of mainland China.<sup>69</sup> The teaching curriculum of this course was prescribed by the Ministry of Education in 1980.<sup>70</sup> Textbooks were written, for example by Wǔ Jì-Píng,<sup>71</sup> according to the promulgated guidelines, and were therefore loaded with the Three People's Principles and anti-communist ideas.

In addition to these theoretical courses, military training was required as a compulsory practical course in ideological and political education in the higher education systems of the PRC and ROC.

In the 1980s, military training was required in part of the higher education system of the PRC. For example, in 1987, 105 higher education institutions were selected by the central authorities as pilot schools, and

110,000 students were involved. Students of 51 higher education institutions (about 60,000) received training in military bases; whereas students of other 54 institutions were trained on campuses. In 1988, the number of selected institutions for military training was increased to 142.<sup>72</sup> The period of training was about 8 weeks: 5 for intensive courses; and 3 for non-intensive.

As compared with the PRC, student military training in the ROC was more demanding in time and compulsory for all tertiary students from 1953.<sup>73</sup> There are two kinds of military training: on campus and at military training centres. Campus military training carries no units, but is compulsory for all students in the first and second years.<sup>74</sup> The total number of hours is 128, i.e. 2 hours for 16 weeks a term.<sup>75</sup> Another type of military training for male students has been taking place in military training centres outside campus since the summer of 1959. The period of training was 14 weeks at initial stages. After several modifications, it was reduced to 6 weeks from 1972 onwards.

However, this thesis argues that student military training on or outside campus in the PRC and ROC was based on the needs for the transmission of central values to students, rather than for the purposes of actual military defence.

In the PRC, the stated purposes of military training were political in nature. This kind of training was, according to the Beijing authorities, supposed to help students acquire the spirit of hard work and striving for success through struggle; to master the concept of collectivism; and to become people of "four-haves" (to have socialist ideals, culture, morality, and

discipline).<sup>76</sup> Moreover, the time spent on the transmission of Chinese socialism to students was not negligible. In military training, the ratio of time spent on practical training and ideological education was stipulated as 1 : 1.<sup>77</sup>

The political nature of military training in the PRC was also reaffirmed by the sudden prolongation of the training period from 8 weeks on campus to 1 year outside campus for new students of Běijīng University and Fùdàn University after the student movement in 1989. Female students of the PRC, unlike those in the ROC, received the same training as males did. In addition to physical exercises, political courses were also set up as part of military training. This training was supposed to give students correct ideological consciousness and all-round development.<sup>78</sup> For example, in 1991-1992, 700 new students of the Fùdàn University were required to study the recent speeches of Dèng Xiǎopíng and Jiāng Zémín. Through this training, 43 students were recruited as members of the CCP.<sup>79</sup>

Student military training in the ROC was as political as in the PRC. Though this course includes spiritual, military, physical and practical training, the objectives were to impart the spirit of the Three People's Principles and an anticommunist consciousness to students, and to prepare them to conduct military defence.<sup>80</sup> Jiǎng Jīngguó reportedly admitted in 1954 that practical military training made up a small part of the whole course.<sup>81</sup> A considerable time was spent on the propagation of official values. In the military training on campus, both female and male students were required to study the thoughts of Sūn Yìxiān, instructions to the youth by Jiǎng Jièshí, and, from 1984, the speeches by Jiǎng Jīngguó. The ratio of time spent on the study of

the works of the three presidents was suggested to be 1 : 3 : 3.<sup>82</sup> Besides, female students studied midwifery and nursery; while male students learned military knowledge. A standardized set of textbooks for male students was written by the Military Department of the Ministry of Education, providing its own version of ROC-PRC relations in the last four decades.<sup>83</sup>

This thesis further argues that the CCP and CNP also utilized the informal curriculum to help students to conform to the socio-political norms prescribed by the respective ruling elites.

In the higher education system of the PRC, teachers were given the duty to monitor the activities of students. Every student was assigned a class tutor who was supposed to give advice and guidance to the student for the whole course of study in higher education. In general, one class tutor "looked after" about 10 students.<sup>84</sup> Political counsellors, selected from party members and lecturers in political theory and directly appointed by the university party committee, were arranged for the students of the first and second years. The political counsellors conducted ideological and communist moral education amongst students, to inform them about current affairs, party line and policies, and to recruit students as party-members.<sup>85</sup>

Extracurricular activities, both vocational and regular, were another channel for the state to transmit the central value system to students in the PRC. Students' social services in vacations were organized by the university authorities to help students experience the life of the masses, and to link theory with practice. Regular extracurricular training was taken up and supplemented by the local Communist Youth League<sup>86</sup> and the student union

under the university party committee in each higher education institution. After activities like participation in productive labour and self-criticism, examinations and appraisals to evaluate their performance were given to students.<sup>87</sup>

As in the PRC, the CNP also employed non-academic activities to help students exhibit behaviours acceptable within the norms prescribed by the ruling elite of the ROC. In the Taiwanese higher education system, there were two major types of special personnel responsible for student discipline: military, and discipline officers. Military officers were assigned by the state to both public and private universities and colleges according to their student enrollment.<sup>88</sup> These two types of officers overlapped in the administrative structure<sup>89</sup> and had the same basic duty: to help students to exhibit behaviours acceptable to the school and political authorities. In particular, military officers, together with academic tutors, gave grades for conduct for each student each term. This grade would be recorded permanently in the overall student report sheet.<sup>90</sup>

Other extracurricular activities in the higher education system of the ROC were also used to transmit the revolutionary ideals and moral values prescribed by the ruling elite. Students were required to attend national flag raising ceremonies. Local Anti-communist Youth Leagues were permitted to recruit student-members, and coordinate seminars and activities to promote anti-communist ideas on campus.

After passing a series of formal and informal curricular requirements in ideological and political education, students of the PRC and ROC would be

awarded degrees. The PRC even indicated in the "Degree Regulation" (promulgated in 1980) that its graduates were supposed to possess minimum "redness" (i.e. to support the CCP and the socialist system) and "expertness."<sup>91</sup>

However, the political performance of PRC students before graduation would affect their future careers more than ROC students. After graduation, ROC students had to find jobs for themselves; whereas PRC students were assigned jobs by the government according to their academic and political achievements.<sup>92</sup> The policy of job assignment by the government in the PRC further limited students' behaviours during their studies.

To sum up, the higher education systems of the PRC and ROC were marked by an emphasis on the preservation of the national identity between 1949 and the late 1980s. The governments of the two countries deliberately linked their higher education systems with the respective monolithic, state-supported, official central value systems, and established institutional controls to minimize domestic and foreign influences on the transmission of revolutionary ideals. As a result, students in the PRC and ROC had little chance to exercise their constitutional rights of freedom and to choose publicly value systems which were challenging to the existing political leadership of the ruling elites.

Nevertheless, despite the institutional controls over the transmission of values in higher education of the PRC and ROC for nearly four decades, the respective Chinese ruling elites faced political challenges by large-scale student demonstrations respectively in 1989 and 1990. Students of both countries demanded reforms in the political structure. This indicated that the students



of the PRC and ROC were dissatisfied, to some extent, with the performance of the respective ruling parties.<sup>93</sup>

However, the differential treatments of the student demonstrations by the respective states of the PRC and ROC indicated their differences in the domestic socio-political development in these two countries in the last decade. In the PRC, the CCP emphasized economic, rather than political, reforms. The political powers were still controlled by leaders of the first generation, and the domestic political structure was publicly monolithic. Within such a domestic socio-political context, student demonstrations were condemned as political struggles against the CCP and socialism by the Politburo on 24 May, 1989.<sup>94</sup> The students were militarily suppressed on 4 June. The student leaders and intellectuals who supported the movement were arrested, or became fugitives and dissidents in other countries.

In contrast, the ROC stressed political reforms before the occurrence of student demonstrations in March 1990. Martial law was lifted and the opposition party, though as a minority, was officially incorporated into the political structure. During the demonstration, the student leaders, unlike those in the PRC, had an opportunity to express their requests directly before President Lǐ Dēnghuī. The movement finally ended in a peaceful way.

The next section will examine the development of cultural transmission in higher education of the PRC and ROC after these student demonstrations.

#### **4.3 CULTURAL TRANSMISSION IN HIGHER EDUCATION OF THE PRC AND ROC IN THE EARLY 1990S**

This thesis argues that owing to different domestic socio-political contexts from

the late 1980s, the higher education systems of the PRC and ROC differed in their relations with the ruling party, but were still used as a way to preserve national identity. In the arenas of political and ideological affairs in the early 1990s, no conspicuous depoliticization – the process of removing political forces or influences – occurred in higher education of the PRC, but partial depoliticization occurred in higher education of the ROC.

However, the nature of the cultural task in these two Chinese higher education systems was basically the same, i.e. they were used by the respective ruling parties to prolong their political leadership through the preservation of national identity within new contexts: for the CCP, to maintain the PRC as a Chinese socialist tradition in an era of the global downfall of communism; and for the CNP, to strive for the international recognition of the ROC as a Chinese cultural tradition against the increasing diplomatic containment by the PRC in the international community.

The discussion on cultural transmission in higher education of the PRC in the early 1990s will be followed by that of the ROC in this section.

#### **4.3.1 Strengthening of the Cultural Task in Higher Education of the PRC**

This thesis argues that despite the introduction of market values as part of the central value system from the late 1980s, the ruling elite of the PRC basically maintained the primary revolutionary ideals and socialist values, and disseminated these values (including market ones) to students through the basic transmission structure used in higher education before the student movement in 1989. This was a result of the Chinese communist leaders'

perceptions about the potential international and domestic threats to their leadership. These threats did not weaken, but strengthened, cultural transmission in the higher education system of the PRC.

#### **4.3.1.1 CCP's Perceptions of Potential Threats in the Early 1990s**

In the early 1990s, the ruling elite of the PRC, this thesis argues, perceived that the transmission of their worldviews to the next generation, and hence their political leadership, was endangered by potential socio-political threats from three major sources: new international political factors, domestic economic reforms, and the political performance of higher education in the PRC.

The first threat to the political leadership of the ruling elite in the PRC from the international community was the global decline of communism in the early 1990s. The downfall of communism was recognized by the ruling elite as a potential challenge to the viability of Chinese socialism on which they justified their leadership. The PRC authorities perceived that Western countries would subvert the PRC and change its monolithic political system into a multi-party one. In 1991, the Minister of the State Education Commission, Lǐ Tiěyǐng, reiterated the idea of his senior party members: the international political challenge to the PRC came from the "international subversion-movement for peaceful evolution."<sup>95</sup> One and a half year later, Lǐ admitted that the downfall of communism had constituted a domestic threat to the political leadership of the CCP.<sup>96</sup>

Another threat to the political leadership of the ruling elite in the PRC, this thesis argues, was the socio-political influences of domestic economic

reforms through the introduction of market mechanisms in the socialist economy. Despite some advantages, market forces, as summarized by Cui Yùnxǐ (the Head of Education Department of the Propaganda Ministry under the Central Committee of the CCP) in 1993, have "bad" socio-political effects on the leadership of the CCP.<sup>97</sup> These "bad" effects include "individualism", "extreme individualism", extravagance of newly rich people, and the exchange of political power and money. In particular, corruption within the CCP and the state structure which was a cause for the emergence of the student demonstration in 1989 continued to exist in the early 1990s.<sup>98</sup>

Finally, the ruling elite of the PRC perceived higher education as potential sources of social disturbances particularly after the Tiananmen Square Incident in 1989. Two surveys about the political situation of higher education in the PRC were done by the State Education Commission respectively in 1991 and 1992.<sup>99</sup> In the 1991 survey, the CCP attempted to identify the possible sources of future disturbances in higher education. The CCP observed that out of 860 full-time higher education institutions, students of 10 universities were "highly possible" to generate social uprisings at anytime; and 62 universities would likely generate or participate in social uprisings.<sup>100</sup> This survey indicated that the PRC was cautious about the recurrence of the 1989 Tiananmen Square Incident.

In the 1992 survey, the State Education Commission chose 50 key-point higher education institutions to study the political tendencies of their students. The results showed that nearly 50% of the responding students were not interested in ideological and political education, and only 9% of the

respondents would like to master their professional studies and to serve the socialist cause. The balance between "redness" and "expertness" in higher education of the PRC had been upset and had shifted away from both sides.

In order to perpetuate Chinese socialist worldviews, and particularly to keep the party line (the construction of socialism with Chinese characteristics) "unshakable" for 100 years,<sup>101</sup> the ruling elite of the PRC came to two conclusions in the early 1990s. The first conclusion was: "the quicker the [economic] reform and openness [to the outside world], the more consolidation and improvement [are needed] in the work of constructing the Party, and in ideological and political education."<sup>102</sup> The second conclusion was to consolidate the CCP leadership in the PRC. In March 1993, the CCP revised the constitution to incorporate into the Preamble for the first time the sentence, "multi-party cooperation under the leadership of the Chinese Communist Party and the political consultation system will [continue to] exist and develop for a long time."<sup>103</sup> The CCP attempted to "legalize" the publicly monolithic political structure and the supreme leadership of the CCP over other "parties."

In other words, the current ruling elite of the PRC acknowledged that the moral claims of its leadership over the people were no longer effective, and that the termination of the era of charismatic leaders has begun. Despite this acknowledgement, Jiāng Zémín reasserted in June 1993 that without the leadership of the CCP, the PRC would have no economic reform and socialist modernization.<sup>104</sup> This suggests that the ruling elite of the PRC still insists on the preservation of socialist ideals and the primacy of the CCP. How to achieve these two goals by improving ideological and political education in the

higher education system of the PRC in the early 1990s will be discussed in the next section.

#### **4.3.1.2 Cultural Task of Higher Education of the PRC in the Early 1990s: Recruitment of Successors**

This thesis argues that despite the incorporation of market values as part of central values, the PRC authorities tightened, not lessened, the political and ideological work in higher education after the Tiananmen Square Incident in 1989. The tightening was indicated on six dimensions: the reassertion of the importance of cultural transmission, the control of campuses, the readjustment of administrative personnel, the training of teachers for ideological and political education, the maintenance of compulsory courses, and the introduction of overall assessment mechanisms in higher education.

##### **4.3.1.2.1 Reassertion of the Cultural Task of Higher Education**

In the early 1990s, the political leaders of the PRC emphasized the recruitment of their successors as an important cultural task of higher education in the early 1990s. Higher education was still perceived, in Dèng's words, as a "strong ideological weapon" against "decadent" capitalist influences although market mechanisms were introduced into the socialist economy and higher education.<sup>105</sup> In March 1991, Lǐ Tiěyìng reasserted that ideological and political education was a means to ensure domestic political and stability, and the persistence of the socialist system in the PRC.

In particular, higher education was to transmit the Chinese socialist worldview through the fostering of "reliable successors."<sup>106</sup> The quality of

these successors, as expected by the Chinese communist leaders, was the students' ability to "resist capitalist liberalization and all decadent thoughts of exploitation."<sup>107</sup> In the 1993 education reform plan, the Central Committee of the CCP also stressed the training of "successors with moral, intellectual, and physical development" and the improvement of the political qualities of teachers.<sup>108</sup> These successors were supposed to possess "four-haves" (morality, socialist ideals, culture and discipline) and supported "three-isms" (patriotism, collectivism, and socialism).<sup>109</sup> The reassertion of the importance of cultural transmission in higher education suggests that it was still an important means to perpetuate the worldviews of the revolutionary elite.

#### 4.3.1.2.2 Maintenance of CCP-controlled Campuses

Despite the permission for the existence of the private sector in higher education, the ruling elite of the PRC created CCP-controlled campuses in which official values were transmitted to students. University campuses, as noted by A. C. Grayling and the Hong Kong press, were patrolled by large numbers of police, particularly on anniversaries of "political significance," for instance, 4 May and 4 June.<sup>110</sup> In July 1992, the educational authorities gave an instruction to higher education institutions that ideas of "capitalist liberalization" should not be allowed to be transmitted on campuses, and that no "earthquakes" (i.e. movements leading to social uprisings) would be allowed to take place. The university authorities were given the duty to suppress these activities at their emergence.<sup>111</sup>

#### 4.3.1.2.3 President-Responsibility System Led by the Party

Besides controlling campuses, the CCP reclaimed its administrative control from the presidents of higher education institutions after the Tiananmen Square Incident in 1989. Between 1990 and 1992, 90% of top university executives were reappointed. More than half of these university executives had attended ideological and political training courses. Party members were "cleansed" through re-registration and reassessment (qīng lǐ qīng chá).<sup>112</sup>

In particular, the Central Committee of the CCP officially changed the "president-responsibility system" to "president-responsibility system led by the Party" in the 1993 education reform plan. The new system explicitly spelt out that the local university party committee would be the highest decision-making organ in each higher education institution. Each local university party committee was supposed to be organized by the CCP as a "strong leadership core and fighting fortress" on campus.<sup>113</sup> The State Education Commission sent an order to 36 higher education institutions directly under its administration and indicated that from 1992-1993 onwards, important issues in these institutions have to be discussed and decided by both presidents and university party secretaries. Although these presidents are given the power to organize executive committees to implement university policies, university party secretaries can control the direction of university reform and the ideological and political work on campus.<sup>114</sup>

Higher education institutions under other ministries and provincial authorities in the PRC were also requested to change from a president-responsibility system to one led by the party. Many universities reportedly



changed the administration system to the party-led system. In Běijīng, most of the city universities adopted the party-led president-responsibility system.<sup>115</sup> University party secretaries were given the power to decide important issues after discussion with university administrators. Only a few higher education institutions were allowed to keep testing the president-responsibility system. In these "exceptional" campuses, university party committees were, however, instructed by the central authorities to function as a "political core."<sup>116</sup> Therefore, the administration of the higher education system was still under the control of the CCP in the early 1990s.

#### **4.3.1.2.4 Teacher Team of Ideological and Political Education**

The CCP also attempted to re-establish a teacher team for ideological and political education through the organization of activities for and raising the qualification of these teachers in the early 1990s. All teachers, according to the 1993 education reform plan, were required to raise their "ideological and political qualities";<sup>117</sup> and to teach in accordance with the policy of the CCP.<sup>118</sup> Between 1990-1992, young teachers were organized to attend theoretical courses on ideological and political education and participate in training relating to rural socialist education.<sup>119</sup> Some of the young teachers were also selected to participate in student military training. In particular, 6,000 teachers received moral education training offered by the Research Committee of Moral Education in Higher Education of Běijīng between 1982-1992.<sup>120</sup>

In 1993, the PRC authorities attempted to increase the quality of

teachers in ideological and political education. This special team was very large; for example, there were 20,800 such teachers (5.2% of the total teacher population) in higher education in 1990.<sup>121</sup> It was suggested that the majority of these teachers would be holders of bachelor or master degrees with a major in ideological and political education; and the rest would be recruited from lecturers in other professions.<sup>122</sup> The teachers in ideological and political education were advised by the State Education Commission to use creative methods and modern educational technology to help teaching compulsory ideological courses. This means that students were supposed to have better (than normal) educational resources in compulsory ideological courses.

#### **4.3.1.2.5 Maintenance of Compulsory Ideological Courses**

In the early 1990s, the PRC still used the passing of compulsory ideological courses (both practical and theoretical) as it did before 1989. Two incidents seemed to indicate that the PRC was lessening the task of the transmission of official values in higher education. The first one was the reduction of the military training period from 1 year back to 8 weeks for new students of the Běijīng University and Fùdàn University from 1993-1994.<sup>123</sup> The second incident was that the Chinese People's University in Běijīng was reported by an official newspaper of the PRC to have replaced 14 Marxist courses with 17 new courses on management and administration.<sup>124</sup>

However, in an interview by *Newsweek* in March 1993, the Minister of State Education Commission, Lǐ Tiěyīng, ruled out the possibility that military

training would be cancelled. He reiterated the PRC's cultural imperative that military training was to "recruit morally, intellectually and physically developed socialist builders and successors."<sup>125</sup> In the same interview, Lǐ also denied that the Chinese People's University has suspended 14 marxist courses. He admitted that only one course, the "theory of price," was cancelled, but the other courses still existed.<sup>126</sup> In the same month, the President of the Běijīng University also announced that courses on Marxism would remain in his university.<sup>127</sup> All these suggest that the PRC still maintained the formal curriculum as a means to transmit the revolutionary ideals and values prescribed by the ruling elite.

#### **4.3.1.2.6 Political Functions of University Assessment Mechanisms**

In order to check how university presidents and teachers implemented the CCP's policy, the ruling elite of the PRC used assessment mechanisms to provide a quantitative evaluation on the political performance of individual higher education institutions.

In the late 1980s, assessment mechanisms were introduced to evaluate the overall performance of individual higher education institutions. These mechanisms were believed by the PRC authorities to "strengthen and improve the macro-guidance and management" when institutional autonomy was increased.<sup>128</sup> In December 1990, the State Education Commission spelt out that the assessment process comprised two stages: assessment by higher education institutions themselves; and by the state (central or provincial authorities). The key items of assessment included ideological and political

education, professional education, and curriculum.<sup>129</sup> In November 1992, the National Assessment Committee was established and was headed by the party secretary of the State Education Commission, Hé Dǒngchāng.

This thesis observes that political performance in most levels of higher education institutions, directly under the State Education Commission or other ministries, was a major assessment item. The State Education Commission designed an assessment scheme for its 36 universities in 1992.<sup>130</sup> Forty-six major areas of assessment were listed. In addition to the assessment of the administration of higher education and the professional standards of teachers and students, the assessment of the ideological and political condition of administrators and party cadres, and teachers and students (undergraduates and postgraduates) was emphasized. In particular, the political performance of universities as "fighting fortresses" at all levels would be assessed in terms of the "respect" for party organizations by students and staff; the results of students in ideological and political education; the number of student party members; and the students' acceptance of job assignments by the state.

Moreover, some provincial authorities on the instruction of the State Education Commission designed their own assessment scheme. However, political performance of higher education at various levels was one of the primary assessment items.<sup>131</sup> In other words, the PRC began to use quantitative methods to measure the political quality of higher education. These assessment mechanisms can be regarded as weapons of the CCP to control ideological and political affairs in higher education.

To sum up, the PRC tightened control over the transmission of the

central value system to students after the student movement in 1989. The perceptions of the ruling elite about the potential international and domestic threats to its political leadership compelled its higher education system to maintain the transmission of the revolutionary ideals and values through the pre-1989 basic transmission structure. As compared with the PRC, there were some signs of the diminution of political influences on higher education in the ROC in the early 1990s. This will be examined in the next section.

#### **4.3.2 Partial Depoliticization in the Cultural Task in Higher Education of the ROC**

This thesis argues that despite partial depoliticization in the administrative structure of higher education in the ROC, its ruling elite did not de-emphasize the cultural task of higher education in the transmission of the central value system to students.

##### **4.3.2.1 Depoliticization within Limits in Higher Education of the ROC**

Since the lifting of martial law in 1987, the higher education system of the ROC has been marked by depoliticization within limits. This was demonstrated on four dimensions: the formation of university teacher associations; the election of the presidents of public higher education institutions; the establishment of religious courses in higher education; and the establishment of the Institute of Taiwan History. In these four areas, the CNP had the opportunity to participate in making the final decision.

#### **4.3.2.1.1 University Teacher Associations as Public Forces**

The university teacher associations of the ROC were allowed to function as public forces, and as political arenas between academics with membership of the ruling party and those without. The participation of CNP academics as a contending group in these associations, then, can limit their policy direction and formulation.

The lifting of martial law in the ROC in 1987 created an opportunity for university academics to form their associations and express their views publicly. There were two types of teacher associations: trans-university; and university-based.

A trans-university teacher association, the University Reform Promotion Association, was established in 1989. This association, after gaining the support of 961 teachers from 16 public and 8 private higher education institutions, wrote a letter to the Legislative Yuan.<sup>132</sup> In this letter, these teachers expressed their request for a change in the relations between higher education and state: from higher education as a state-agent to an independent legal entity accountable to the law, but not to the state or to the CNP.

Before the formation of this trans-university association, many university teacher associations had been organized by academics in their universities in 1987.<sup>133</sup> These associations made public claims to demand the withdrawal of political forces (including military officers) from universities; university autonomy in administration and curriculum; and freedom of publication.<sup>134</sup>

However, the development of some university teacher associations was

limited by the diffusion of CNP academics. These associations became political arenas for the struggles between teachers with CNP membership and those without. The CNP first banned, and then encouraged its member teachers to participate in such associations. These CNP teachers became mainstream forces in the standing committees of these associations. In the case of the university teacher association of the National Taiwan University, the association founders withdrew their membership and gave up their opportunities in the second election of the standing committee in 1989.<sup>135</sup>

Therefore, since 1987, the formation of university-based and trans-university teacher associations have created platforms for teachers to express publicly their protests against the control of higher education by the CNP. However, the demand of teachers (and students) for the depoliticization of higher education would not be satisfied unless the CNP and state devolved powers on higher education. The next section will discuss the issue concerning the devolution of powers from the Ministry of Education to individual higher education institutions in the early 1990s.

#### **4.3.2.1.2 Election of the Presidents of State Universities**

Before 1992, the nomination and appointment of the presidents of all state universities in the ROC were completely controlled by the Ministry of Education. In December 1992, the Ministry of Education, after testing,<sup>136</sup> promulgated the "Principles of Selection of the Presidents and Directors of State Universities," and attempted to use these principles to select presidents of the National Taiwan University, National Taiwan Normal University and

Provincial Taipei Teachers College in 1993. According to the "Principles of Selection," the president of a state higher education institution would be appointed by the Ministry of Education after a nomination procedure conducted by a selection committee controlled by the Ministry of Education.<sup>137</sup>

However, this thesis suggests that university academics attempted to minimize party control over their future presidents in the nomination and selection processes. This was indicated on three dimensions: the formation of a university-based selection committee; the diversification of the sources of nominees for presidency; and the requirement of the successful candidate not to hold concurrently party and presidential offices.

In early 1993, the academics of the National Taiwan University and National Taiwan Normal University objected to the formation of selection committees by the Ministry of Education. These academics insisted that the selection committees must be university-based, i.e. the committee members must be administrative and teaching staff of the universities concerned, and no representatives from the Ministry of Education would be accepted as members. In March 1993, the Minister of Education, Guō Wéifān, accepted the persistence of these two universities and suspended the formation of state-led selection committees for them.<sup>138</sup> Finally, these two universities established their own selection committees and devised their own criteria for selecting their presidents.<sup>139</sup>

These two selection committees further minimized party control over their future presidents by diversifying the sources of applicants before the final



nomination to the Ministry of Education for appointment. Applicants for a presidency must have support from either groups of academics or organizations including professional associations, student unions, alumni associations, or the Ministry of Education.<sup>140</sup> In the case of the National Taiwan Normal University, the Minister of Education declared that he would not nominate candidates to participate in the competition for the presidential post.<sup>141</sup>

Moreover, these two selection committees required the applicants for presidency to submit a written letter to declare that if they are chosen and appointed by the Ministry of Education as president, they must not concurrently take up party duties during their terms of office. This would mean discontinuing the tradition that the president of a national university (as discussed earlier in this chapter) usually took up party duties on campus or in the public political structure. The current President of Soochow University echoed this new practice and resigned from the Central Committee of the National Assembly (the highest political body in the ROC) in April, 1993.<sup>142</sup>

The devolution of power on public higher education institutions to select their presidents was a political struggle between university academics and the state. University academics have successfully striven for an opportunity to provide a wider choice of candidates for the Ministry of Education to consider, and at the same time to limit its choice.

However, the Ministry of Education still holds the final power over the appointment of their future presidents. Although there were ROC scholars based in the US who competed for the presidential posts of the National

Taiwan University and National Taiwan Normal University, the final successful candidates selected by university academics were former top executives of these two universities: Chèn Wéizhāo, the former Director of the Medical College of the National Taiwan University; and Lǚ Xīmù, the former Dean of Studies of the National Taiwan Normal University. These two presidents were finally appointed by the Ministry of Education without objection respectively in June and July 1993. From another viewpoint, this thesis suggests that the appointment of these two new presidents by the Ministry of Education was an internal promotion, but via a more complicated and more "transparent" procedure, by the Ministry.

The next section will discuss the ROC's toleration of other non-communist value systems to be institutionalized in its higher education system in the early 1990s.

#### **4.3.2.1.3 Establishment of Religious Courses**

This thesis argues that after the lifting of martial law in 1987, the state of the ROC began to tolerate religious pluralism (the official transmission of more than one religious value system) with political limits in its higher education.

Before 1987, no religious courses were allowed to be established in any higher education institution of the ROC, although there were some private universities, like Fujen Catholic University and Chungyuan Christian University, run by churches. The first institute of religion (for postgraduate students) was established in the Fujen Catholic University in 1987. However, this religious institute was subject to the condition that the contents of the

course should be comparative, and no single religion should be propagated alone.<sup>143</sup>

However, the institutionalization of religion in higher education of the ROC, this thesis argues, would not change the domination of the transmission of the central value system. Up to 1993, only one university provided religious education for postgraduate students; but many national and private universities trained specialists on the studies of the Three People's Principles. The number of postgraduate students of religion was much smaller than that in the Institutes of the Three People's Principles. For example, in 1990-91, there were only 19 postgraduate students of religion, but 169 master students and 96 doctoral students were enrolled in the Institutes of the Three People's Principles.<sup>144</sup>

The previous three examples (the formation of university teacher associations, the selection of the presidents of state universities, and the institutionalization of religious courses) have demonstrated the political limits prescribed by the ROC state. The next example will show that some political limits were prescribed by academics themselves.

#### **4.3.2.1.4 Establishment of the Institute of Taiwan History**

This thesis further argues that part of the academic community in the ROC still practised self-censorship in the early 1990s. Self-censorship is defined as an act to avoid discussing issues in public which are deemed politically sensitive and challenging to the existing political leadership.

In March 1993, the Academia Sinica decided to establish an Institute of

Taiwan History to research the social, economic and political development of Taiwan. The founding goal of this institute is to "upgrade the Taiwan's standing in international academic circles by establishing strong theories and effective approaches to the study of Taiwan history."<sup>145</sup>

However, the development of the Institute of Taiwan History would be limited by the constraints imposed by the government and the academic community. The proposal of research areas needs to be approved by the Office of the President of the ROC. Some research fellows of the Academia Sinica admitted that in order to avoid current politically sensitive issues, the Institute will not carry out research on the problems of the independence of Taiwan and its unification with the PRC. The period of Taiwanese history to be studied will also be limited up to 1960.<sup>146</sup> This indicated that some academics still took political factors into account when thinking about studies related to the political leadership in the ROC.

This thesis has demonstrated that from the late 1980s, the political control of higher education by the CNP was relatively diminished. However, the contents of the central value system and its transmission structure in the higher education system of the ROC in the early 1990s remained the same as those before. This will be discussed in the next section.

#### **4.3.2.2 Persistence in the Transmission of Central Value System**

This thesis argues that despite some changes in compulsory courses for undergraduate students in the early 1990s, the higher education system of the ROC was still a state agent to propagate the official belief system to students.

The official beliefs are those revolutionary ideals and values prescribed by the ruling elite members of the first generation, and are disseminated through the transmission structure created by them.

Despite the objection of teachers of non-ideological courses, the Ministry of Education made relatively less change in the transmission of the central value system through the formal curriculum in the early 1990s. In October 1992, the Ministry of Education under the pressure of university academics revised the list of compulsory subjects common to all higher education institutions.<sup>147</sup> From 1993-1994, two ideological courses, "Thoughts of Sūn Yǐxiān" and the "Constitution of the ROC," would be cancelled despite the objection of the lecturers of these courses.<sup>148</sup> The course on the "Thoughts of Sūn Yǐxiān" was strongly opposed by academics. A new compulsory course, "The Constitution and Founding Spirit of the ROC," would be introduced in the same year. Higher education institutions with difficulties in introducing this new course would be allowed to delay to 1994-1995.<sup>149</sup>

However, this thesis observes that the major purpose of this new course is the same as the old one: the transmission of the central value system to students. The new course is simply an incorporation of the course "Thoughts of Sūn Yǐxiān" into the "Constitution of the ROC." This is indicated by the goals of the new course stated by the Ministry of Education. The new course is expected to help students on three dimensions: to develop the concept of democracy; to understand the founding spirit and ideals of the ROC; and to learn the thoughts of Sūn Yǐxiān, the constitution of the ROC, and their integration with other contemporary trends.<sup>150</sup> The founding spirit and

ideals of the ROC, as discussed in Chapter Three, are claimed by the CNP to be based on the Three People's Principles. In other words, the revolutionary ideals are to be disseminated in the formal curriculum of the higher education system in the ROC in the early 1990s. Evidence of this can be found in a textbook written by Hóng Quánxiāng for this "new" course.<sup>151</sup>

Moreover, other compulsory ideological courses are maintained in the formal curriculum of the higher education system in the ROC. Students are still compelled to take the CNP's version of Chinese history. Military training remains compulsory for all students of the first and second years.<sup>152</sup> This course must be passed by students who want to graduate.<sup>153</sup>

Finally, the structural relations between military officers and discipline committees in higher education institutions of the ROC remained intricate until the end of 1993. The new University Act (passed in December 1993) attempts to separate the functions between military offices and discipline committees in supervising students.<sup>154</sup> According to the Act, discipline committees will be changed into student affairs committees responsible for counselling and extracurricular affairs, but military offices are kept as one of highest organs and are responsible for military training and nursery. In other words, despite the objection of university academics and despite the pressures from the opposition party since the lifting of martial law in 1987, military officers are legally permitted to continue to exist on campus. Moreover, how the separation in functions between military offices and disciplines will affect the transmission of the central value system on campus remains unknown.

To sum up, despite some changes relating to cultural transmission in

the higher education system of the ROC in the early 1990s, these adjustments were made within the political limits prescribed by the state. These limits included the state as the final decision-maker; the Three People's Principles as the core of the central value system; and the avoidance of public discussion about politically sensitive issues in the academic community.

In particular, the propagation of the Three People's Principles in the higher education system of the ROC, this thesis suggests, is now used by the ruling elite to resist potential incorporation by the PRC. The global decline of socialism and the increasing PRC-ROC non-diplomatic ties undermine the cultural task of transmitting anti-communist ideas to students in the Taiwanese higher education system. However, the ruling elite of the ROC continues to refuse communist values, and insists on the future unification between the two countries under the principle of "one country one system." The system is expected by the Taipei authorities to be one which is a "democratic and pluralistic society that has a free economy and a culture in harmony with daily life."<sup>155</sup> The potential unified China, as expected in the 1991 "Guidelines for National Unification" of the ROC, would be a "democratic, free and equitably prosperous China."<sup>156</sup> The teaching of the constitution and the "founding spirit" of the ROC is, then, an important way to preserve its own cultural and political identity in spite of the lack of official international recognition in the early 1990s.

#### **4.4 SUMMARY AND CONCLUSION**

This chapter has described the relations between higher education, the state,

and the central value systems of the PRC and ROC between 1949 and 1993.

This chapter has been argued that despite the changes in domestic relations (between the ruling party, state, people and economy) and international relations with other countries for the last forty-four years, the higher education systems of the PRC and ROC have been transmitting the revolutionary ideals and values prescribed by the ruling elites of the first generation.

The preservation of cultural identity in the higher education systems of the PRC and ROC was a continuity of classical Chinese higher education. These three higher education systems differed in the traditions they preserved: the classical, Confucianism; the PRC, Chinese socialism; and the ROC, the Chinese modified cultural tradition represented in the Three People's Principles. However, for the last forty-four years, the higher education systems of the PRC and ROC inherited three cultural legacies from classical Chinese higher education: the domination of a monolithic, state-supported central value system; the emphasis on moral education; and the deliberate links between higher education, the state, and official beliefs.

Moreover, these two Chinese higher education systems in the early 1990s were still marked by revolutionary and cold-war legacies. The revolutionary ideals and moral values prescribed by the respective national founders during the periods of revolution and the cold war were still propagated through the basic transmission structure created by them. The dissemination of central values in higher education of the PRC and ROC was as important in the early 1990s as in the founding period. The current ruling



elite of the PRC insisted on the preservation of Chinese socialism in an era of global decline of communism; whereas the current ruling elite of the ROC persisted in using the preservation of Chinese culture represented in the Three People's Principles as a contrast to the PRC in the Taiwanese struggles for international political identity.

In the next two chapters, two fields of study -- science and technology -  
- in both higher education systems will be selected to discuss how the PRC and ROC handled the tension between the preservation of national identity and economic modernization with the introduction of foreign science and technology.

### Endnotes for Chapter Four

1. Article 19. See *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), p.19.
2. Article 24 states that "the state strengthens the building of a socialist society with an advanced culture and ideology by promoting education in higher ideals, ethics, general knowledge, discipline and legality, and by promoting the formulation and observance of rules of conduct and common pledges by various sections of the people in urban and rural areas. The state advocates the civic virtues of love of the motherland, of the people, of labour, of science and of socialism. It conducts education among the people in patriotism and collectivism, in internationalism and communism and in dialectical and historical materialism, to combat capitalist, feudal and other decadent ideas." See *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), p.21.
3. This was the first time Máo summarized in a very short form the function of education which was governed by the "Common Programme." See Zédōng Máo, *Máo Zédōng Xuǎnjì Dìwǔjuàn* (Selected Works of Máo Zédōng) (Beijing: People's Publishing House, 1977), Vol.5, p.385.
4. Article 46 is: "The state promotes the all-round development of children and young people, morally, intellectually and physically." See *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), p.32.
5. The Ministry of Education of the PRC promulgated the "Suggestions Concerning the Strengthening of the Ideological Work in Higher Education" on April 29, 1980; and issued the "Suggestions of the State Education Commission on the Promotion of Undergraduate Courses in the Ordinary Colleges and Universities" on April 27, 1988. These articles are respectively in *Zhōngguó Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949-1981) (Beijing: China Encyclopedia, 1984), p.833; and Jian Li (Gen. ed.), *Zhōngguó Jiàoyù Niánjiàn, 1989* (Yearbook of Education in China, 1989) (Beijing: People's Education, 1990), p.785.
6. The formula was exactly quoted as the tenth point (out of sixteen) of the guidelines for the Great Proletarian Cultural Revolution. See the Section on "Educational Reform of Decision of the Central Committee of the Chinese Communist Party Concerning the Great Proletarian Cultural Revolution." The Decision is in Suinian Liu, and Qungan Wu (eds.), *China's Socialist Economy: An Outline History, 1949-1984* (Beijing: Beijing Review, 1986), pp.553-563. See also Mark Selden (ed.), *The*

*People's Republic of China: A Documentary History of Revolutionary Change* (New York and London: Monthly Review, 1979), pp.549-556.

7. *Reform of China's Educational Structure: Decision of the CPC Central Committee (May 1985)* (Beijing: Foreign Languages, 1985), p.21.
8. See Article 27, in Central Committee of the Communist Party of China and State Council, "Zhōngguó Jiàoyù Gǎigé He Fāzhǎn Gāngyào" (Guidelines of China's Educational Reform and Development), *Wénhuì Bào* (Shanghai), 27 February, 1993.
9. Jièshí Jiǎng, "The Fundamental Objective of the Work of the Youth League," *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yánlùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.18, pp.242-243. See also "Education for Saving China," Vol.14, p.552.
10. Jiǎng Jièshí, "Education Policy for the Future," *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yánlùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.16, pp.127-135, particularly p.134.
11. Tiějūn Zhāng, "Sānmín Zhǔyì Jiàoyù Yánjiūjí Xù" (Preface to the Collection of articles on Education by the Three People's Principles), in Research Institute of the Three People's Principles (ed.), *Sānmín Zhǔyì Jiàoyù Yánjiūjí* (Collection of Articles on Education by the Three People's Principles) (Taipei: Research Institute of the Three People's Principles, 1962), p.4.
12. *Zhōnghuá mínguó Xiànfǎ* (Constitution of the Republic of China) (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1989), p.60; for the English translation, see *Constitution of the Republic of China* (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1988), p.48.
13. For example, see *Education in the Republic of China* (Taipei: Bureau of Statistics, Ministry of Education, 1988), p.4.
14. "The Central Committee of the Chinese Communist Party's Instruction Concerning the Reform and Strengthening of Moral Education in Primary Education" was issued on December 25, 1988. It is in Jian Li (Gen. ed.), *Zhōngguó Jiàoyù Niánjiàn, 1989* (Yearbook of Education in China, 1989) (Beijing: People's Education, 1990), pp.774-778.
15. Franz Schurmann, *Ideology and Organization in Communist China* (Berkeley and Los Angeles: University of California Press, 2nd and enlarged edition, 1968), p.582.
16. When Máo dominated the political arenas in the PRC, people were educated, according to Theodore H.E. Chen, to be new socialist citizens

- with seven characteristics: absolute selflessness, obedience to the CCP, class consciousness, ideological study, labour and production, versatility, red and expert. See Theodore Hsi-En Chen, "The New Socialist Man," in C. T. Hu (ed.), *Aspects of Chinese Education* (New York: Teachers College Press, 1969), pp.88-95.
17. See the 1954 and 1975 versions of the constitution of the PRC in *Zhōnghuá Rénmín Gònghéguó Gòngtóng Gānglǐng Jí Xīnjiù Xiànfǎ* (The People's Republic of China: a Collection of the Common Programme and New and Old Constitutions) (Hong Kong: Běifāng, 1970).
  18. Article 24 in the *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), p.21.
  19. See the "Decision of the Central Committee of the CCP Concerning the Guidelines of the Construction of Socialist Spiritual Civilization" which was adopted on 28 September, 1986. The "Decision" is in *Jiàoyù Gǎigé Zhōngyào Wénxiàn Xuǎnbiān* (Beijing: People's Education, 1988), pp.1-14. See also the Editorial of *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 25 June, 1993, p.1.
  20. Xiǎopíng Dèng, *Dèng Xiǎopíng Wénxuǎn, 1975 - 1982* (Selected Works of Dèng Xiǎopíng, 1975 - 1982) (Beijing: People's Publishing House, 1989), p.102.
  21. Xiǎopíng Dèng, *Jiànshè Yǒu Zhōngguó Tèsè De Shèhuì Zhǔyì* (To Build Socialism with Chinese Characteristics) (Beijing: People's Publishing House, 1984), pp.15, 98.
  22. The "five emphases" and "four beauties" were moral virtues selected by the communist authorities during the "campaign for the construction of socialist civilization" launched in 1981. According to the Editorial of *Rénmín Rìbào* (People's Daily), the "five emphases" and "four beauties" represented virtues observed in different stages. People could proceed further from the stage of "five emphases" to the stage of "four beauties." Particularly, the first beauty (spiritual) was supposed to be the cultivation of people with ideology, morality, and faithfulness so that people would faithfully support the communist party leadership and socialism, and would not insult the nation, and themselves. See *Rénmín Rìbào* (People's Daily), 28 February 1981.
  23. The comprehensive definition of "redness" and "expertness" for higher education was proposed by the Theory Committee of the Ministry of Education in its article, "To Run Higher Education Institutes According to the Objective Reality of Educational Work," *Rénmín Jiàoyù* (People's Education), 1979, No.5; and a more general definition is in Wenming Su (ed.), *A Nation at School* (Beijing: Beijing Review, 1983), p.39.

24. In the early 1960s, the theme of "expertness" was brought back in higher education because of the failure of the Great Leap Forward Movement. Vice-Premiers, Chén Yì and Niè Róngzhēn, linked "expertness" with "redness." Chén argued that the political mission of students was to master their specialized studies, while Niè suggested that "redness" without "expertness" was impossible. For Chén's argument and Niè's suggestion, see *Guāngmíng Rìbào* (Guangming Daily) respectively on 3 and 17 September, 1961.
  
25. The priority of "red and expert" became a hot issue during the transition from the first Five-year Plan to the second Five-year Plan. In February 1957, Máo Zédōng complained about Liú Shǎoqí's policy of emphasis on "expertness," and re-asserted the importance of the balance between "redness" and "expertness" in his article, "Concerning the Handling of the Problems of People's Internal Contradictions", in 1957. According to him at that time, intellectuals or young students should master both professional knowledge and politics. On political dimensions, they should study Marxism and current political affairs. Education was expected by Máo to be a means to train students to become labourers with socialist consciousness and culture. See Zédōng Máo, *Máo Zédōng Xuǎnjì Dìwǔjuàn* (Selected Works of Máo Zédōng) (Beijing: People's Publishing House, 1977), Vol.5, p.385.
  
26. The directives were: the "Suggestion Concerning the Strengthening of Political and Ideological Work among Students of Higher Education" which was promulgated against the 1976 student movement on 29 April, 1980; the "Central Committee of the Chinese Communist Party's Directive Concerning the Education Reform of Ideological Quality and Political Theory Teaching Curriculum" which was issued against "Spiritual Pollution" on 1 August 1985; and the "Central Committee of the Chinese Communist Party's Decision Concerning the Improvement and Strengthening the Political and Ideological Work of Higher Education" which was promulgated against "Capitalist Liberalization" on 29 May 1987. The first directive is in *Zhōngguó Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949 - 1981) (Beijing: China Encyclopedia, 1984), pp.833-835; the second one is in *Zhèngguó Yuán* (ed.), *Zhōngguó Dāngdài Jiàoyù Sīcháo, 1949 - 1989* (China's Contemporary Education, 1949-1989) (Shanghai: Joint Publishing Co., 1991), pp.407-410; and the third one is in Zhuànhuà Lǐ, Lù Chéng, and Bīnjié Liǔ (eds.), *Zhōngguó Zhèngzhì Sīxiǎng Gōngzuò Quánshū Shàngjuàn Yú Xiàjuàn* (Complete Text On the Political Ideology Work of the People's Republic of China) (Beijing: People's University of China Press, 1990), Vol.1, pp.396-401.
  
27. In 1990, the Minister of State Education Commission, Lǚ Tiěyǐng, called for further ideological strengthening in higher education according to the 1987 directive after the massacre in 1989. Lǚ gave his speech at the State Education Working Meeting held on 16 January, 1990. The speech

- is in Zhèngguó Yuán (ed.), *Zhōngguó Dāngdài Jiàoyù Sīcháo, 1949 - 1989* (China's Contemporary Education, 1949-1989) (Shanghai: Joint Publishing Co., 1991), pp.493-506.
28. Jièshí Jiǎng, "Education for Saving China" *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yáilùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.14, pp.547-561.
  29. Jièshí Jiǎng, "Two Supplementary Lectures on National Livelihood: Education and Music," and "Fundamental Objective of the Youth League," in *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yáilùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), respectively Vol.3, pp.224-225; and Vol.18, pp.239-240.
  30. *Education in Taiwan Province, the Republic of China* (Taipei: Department of Education, 1984), p.1.
  31. Tiějūn Zhāng, "Sānmín Zhǔyì Jiàoyù Yánjiūjí Xù" (Preface to the Collection of articles on Education by the Three People's Principles), in Research Institute of the Three People's Principles (ed.), "Sānmín Zhǔyì Jiàoyù Yánjiūjí" (Collection of articles on Education by the Three People's Principles) (Taipei: Research Institute of the Three People's Principles, 1962), p.2.
  32. Chi-yun Chang, *The Rebirth of the Kuomintang: The Seventh National Congress* (Taipei: China Cultural Service, n.d.), p.101.
  33. See the Section on Higher Education of "Education and Culture," in *Tǒngjì Tíyào* (Statistical Abstract of the Republic of China, 1960) (Taipei: Directorate-General of Budgets, Accounts & Statistics, Executive Yuan, 1960), p.358.
  34. Zédōng Máo, "On Ten Great Relations," in *Máo Zédōng Xuǎnjì Dìwǔjuàn* (Selected Works of Máo Zédōng) (Beijing: People's Publishing House, 1977), Vol. 5, pp.279-280.
  35. Xiǎopíng Dèng, *Jiànshè Yǒu Zhōngguó Tèsè De Shèhuì Zhǔyì* (To Build Socialism with Chinese Characteristics) (Beijing: People's Publishing House, revised ed., 1984), p.100.
  36. Jièshí Jiǎng, "The Nature of the Three People's Principles," *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yáilùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.3, pp.157-182. Particularly see p.172.

37. The Ministry of Education spelt out that the primary task of education through the Principle of Democracy was to educate people to achieve a certain educational level so that they could exercise the four constitutional rights, and abide by the laws. See, for example, *Education in Taiwan Province, the Republic of China* (Taipei: Department of Education, 1984), p.1.
38. Foreign churches sponsored 34% of the private sector. See *Zhōngguó Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949-1981) (Beijing: China Encyclopedia, 1984), p.78; and Jan-Ingvar Löfstedt, *Chinese Educational Policy: Changes and Contradictions 1949-79* (Stockholm, Sweden: Almqvist & Wiksell International, 1980), p.73.
39. The former USSR took control of tertiary education half a year after the October Revolution in 1917. In June, 1918, Lunacharski, the first People's Commissar of Education, issued his first annual report stating that the private ownership of schools (higher education institutes) was abolished through the demolition of the church and the elimination of religion in the curriculum. See James Bowen, *Soviet Education: Anton Makarenko and the Years of Experiment* (Madison: University of Wisconsin Press, 1962), p.29.
40. Qián Jùnrù was educated in the Massachusetts Institute of Technology. However, he was one of the keenest persons to get rid of American-subsidized schools in the PRC. His whole statement, "The Disposal of American-subsidized Schools is the Foremost Task on the Cultural Front Now," was issued in February 1951, and is in Stewart Fraser (ed.), *Chinese Communist Education: Records of the First Decade* (Nashville: Vanderbilt University Press, 1965), pp.98-103.
41. William Purviance Fenn, *Christian Higher Education in Changing China, 1880-1950* (Grand Rapids: Eerdmans, 1976), pp.225-231; and Jan-Ingvar Löfstedt, *Chinese Educational Policy: Changes and Contradictions 1949-79* (Stockholm, Sweden: Almqvist & Wiksell International, 1980), p.73.
42. According to the statistics given by Mǎ Xùlún at the Conference of Higher Education on June 1, 1950, among 227 institutions, 138 (60.8%) were run by the state, 65 (28.6%) by the non-religious private sector, and 24 (10.6%) by missionary churches. In his annual report in June, 1951, he stated that more than 70 private institutions of higher education, instead of 89, still existed. This suggested that some institutions, particularly those run by foreign enterprises, had been taken over by the state. The speech originally appeared in *Rénmín Rìbào* (People's Daily), June 14, 1950. It was translated by S. M. Ma and is in Ching-Ming Ho and Eli Seifman (eds.), *Toward a New World Outlook: A Documentary History of Education in the People's Republic of China, 1949 - 1976* (New York: AMS Press, 1976), p.12. See also *Zhōngguó Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949-1981) (Beijing:

China Encyclopedia, 1984), p.233.

43. *Zhōngyāng Rìbào* (Central Daily News, international edition), 4 April, 1993.
44. The success in the implementation of using Mandarin as official medium of instruction was utilized by the nationalist government as a demonstration of the achievement of the Three People's Principles to the PRC. See *Guóyǔ Tuīxíng Zhèngcè Jì Cuòzhī Zhī Jiǎntǎo Yu Gǎijìn* (Evaluation and Improvement of the Policy and Measure of Promoting Mandarin) (Taipei: The Executive Yuan, 1982), pp.11-13, 21.
45. Wen-Hsing Wu, Shun-Fen Chen and Chen-Tsou Wu, "The development of higher education in Taiwan," *Higher Education*, Vol.18, No.1 (1989), p.124.
46. *Yàzhōu Zhōukān* (Asian Weekly), 17-24 February, 1991, p.23.
47. In the former USSR, education at all levels and of all types was mainly controlled by the Central Communist Party and the Soviet government. Guiding directives on education were discussed at Communist Party Congresses and in meetings of its Central Executive Committee. All central planning and operational control were implemented through the Party and the vertical administrative hierarchy. The Union-Republic Ministry of Higher Education, under the direct control of the Party, exercised supervisory control in all aspects, including academic standards, over Soviet higher educational institutions and semiprofessional schools. The duties of the Ministry included the determination of the number of higher education institutes and the composition of their faculties and departments; the appointment and assignment of administrative and teaching staff; the appointment of directors; the approval of the number of subjects taught, the teaching curriculum and textbooks; and the control of enrollment quotas of students and the assignment of graduates. The list of duties of the Union-Republic Ministry of Higher Education was cited from *Vyshshaya Shkola; Osnovnye Postanovleniya, Prikazyi Instruksii* (edited by A. M. Khodshaev, 2nd ed., pp.20-23) by the International Educational Relations Branch of U. S. Department in *Education in the USSR* (Washington, D. C.: Office of Education, U. S. Department of Health, Education and Welfare, 1957), p.35.
48. The administrative relations among the Party, the Ministry of Education (later divided into the Ministry of Higher Education and Ministry of General Education), local education authorities and higher education institutes were best summed up by Article 16 of the "Constitution of the Communist Party of China": "Party decisions must be carried out unconditionally. Individual Party members shall obey the Party organization, the minority shall obey the majority, the lower Party organizations shall obey the higher Party organizations, and all



constituent Party organizations throughout the country shall obey the National Party Congress and the Central Committee." The Constitution of the Communist Party of China was adopted in the Eighth National Congress of the Communist Party of China on 26 September, 1956, and is in *Eighth National Congress of the Communist Party of China* (Beijing: Foreign Languages, 1981), pp.143-176. See also Winberg Chai (ed.) *Essential Works of Chinese Communism* (New York: Bantam, 1969), pp.302-303; and Ching-Ming Ho and Eli Seifman (eds.), *Toward a New World Outlook: A Documentary History of Education in the People's Republic of China, 1949 - 1976* (New York: AMS Press, 1976), p.41.

49. The four directives relating to the leadership of higher education institutes were: the Directive Concerning the Provisional Management Methods of Higher Education by Regional Administrative Council which was issued by the State Administrative Council on May 5, 1950; the Directive Concerning the Leadership Relationships in Higher Education which was passed at the 43rd meeting of the State Administrative Council on July 28, 1950, and issued on August 2 in the same year; the Directive Concerning the Provisional Regulations of Higher Education which was issued by the Ministry of Education on August 14, 1950; and the Directive Concerning the Revision of the Leadership Relationships in Higher Education Institutes which was passed in the 180th meeting of the State Administrative Council on May 29, 1953, and issued on October 11 in the same year. The state control over higher education was marked by oscillations between centralization and decentralization. Between 1949 and 1958, the higher education system was highly centralized though there was a short period of decentralization. These four major directives in this period described the areas of higher education to be supervised and who had the power to make the final decision on these areas were compared in Appendix 4.1. Common to them was the absolute control of the Ministry of Education or the Ministry of Higher Education over education policy and system, the establishment and abolition of institutes, the appointment and demotion of presidents, the budget and expenditure. "President-responsibility" system was encouraged up to the middle of 1953. Presidents had the right to appoint their key administrative heads, directors of research institutes and colleges, teaching staff, librarians, clerical and minor staff. However, under the fourth directive of May 1953 the presidents' domestic right was transferred back to the Ministry of Higher Education. The teaching curriculum, plans and outlines were also subject to the control of the Ministry. The first, third and fourth directives are in *Zhōngguó Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949-1981) (Beijing: China Encyclopedia, 1984), pp.775-777, 781; and the second one is in Zhèngguó Yuán (ed.), *Zhōngguó Dāngdài Jiàoyù Sīcháo, 1949 - 1989* (China's Contemporary Education, 1949-1989) (Shanghai: Joint Publishing Co., 1991), p.2.

50. Yùliáng Zhōu (ed.), *Education in Contemporary China* (Hunan: Hunan Education Publishing House, 1990), pp.399-400.
51. In September 1961, the "Provisional Work Regulation of Higher Education Institutes" was promulgated after the evaluation of the failure of the Great Leap Forward by the Ministry of Education. The "Regulation" was first discussed in a committee led by the Party General-Secretary, Dèng Xiǎopíng, and finally endorsed by Chairman Máo. After evaluating the failure of the Great Leap Forward Movement, the Party called for replenishment and improvement of the Party leadership to develop fully its administrative functions in education sphere. The whole provisional regulation is in *Zhōngguó Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949 - 1981) (Beijing: China Encyclopedia, 1984), pp.237-239.
52. *Reform of China's Educational Structure: Decision of the CPC Central Committee (May 1985)* (Beijing: Foreign Languages, 1985), p.20. See also the Chinese version of the "Reform" in Zhèngguó Yuán (ed.), *Zhōngguó Dāngdài Jiàoyù Sīcháo, 1949 - 1989* (China's Contemporary Education, 1949 - 1989) (Shanghai: Joint Publishing Co., 1991), pp.398-407, particularly p.406.
53. The areas over which presidents had decision-making powers included the adjustment of student quota for self-supporting students and those sent by production units; the re-organization of the internal distribution of specialties; the development of economic links with other production units, particularly in the areas of science and technology; the removal of vice-presidents and other cadres at various level; and the allocation of state funds and the money collected by higher education institutions. See *Reform of China's Educational Structure: Decision of the CPC Central Committee (May 1985)* (Beijing: Foreign Languages, 1985), p.15.
54. Ruiqing Du, *Chinese Higher Education: A Decade of Reform and Development (1978-1988)* (Basingstoke, Hampshire: MacMillan, 1992), p.27.
55. Kai-ming Cheng, "Zhōngguó Jiàoyù Gǎigé He Fāzhǎn Gāngyào" (Guidelines of China's Educational Reform and Development), in *Xīnbào Cáijīng Xīnwén* (Hong Kong Economic Journal), 7 April, 1993.
56. According to the 1982 version of the "University Act," the president of a national university was appointed by the central government through the recommendation of the Ministry of Education. The presidents of provincial and municipal institutes and private institutes could be appointed respectively by local government and the governing board only after obtaining approval from the Ministry of Education. See Article 9 of the "University Act" of the 1972 and 1982 versions. The 1972 version of the "Act" is in *Jiàoyù Fǎguī Huìbiān* (A Collection of Education Acts) (Taipei: Commission of Acts, Ministry of Education,

- 1975), Vol.1, pp.273-4; and the 1982 version is in *Gāoděng Jiàoyù Fǎguī Xuǎnjí* (Selection of the Regulations of Higher Education) (Taipei: Department of Higher Education, Ministry of Education, 1990), p.2.
57. Bǐnghuáng Huáng, "21st Shìjì Wǒguó Gāoděng Jiàoyù De Fāzhǎn Qūshì" (Development Trends of Higher Education of the R.O.C. in the 21st Century) in Education Research Center, Dàn Jiāng University (ed.), *21st Shìjì Wǒguó Gāoděng Jiàoyù De Fāzhǎn Qūshì* (Development Trends of Higher Education of the R.O.C. in the 21st Century) (Taipei: Shī Dà Shū Yuàn, 1990), p.564.
  58. Articles 9-13 of the "University Act." See *Gāoděng Jiàoyù Fǎguī Xuǎnjí* (Selection of the Regulations of Higher Education) (Taipei: Department of Higher Education, Ministry of Education, 1990), pp.1-6.
  59. Some speeches of the ruling elite were selected for examination contents of the paper on the political knowledge of the PRC. The paper on Chinese language was also related with politics. See Ministry of Higher Education (ed.), *1958 Nián Shǔqī Gāoděng Xuéxiào Zhāoshēng Dàgāng* (A Summary of the Syllabuses for 1958 Summer Examinations) (Beijing: Ministry of Higher Education, 1958); Ministry of Education (ed.), *1960 Nián Shǔqī Gāoděng Xuéxiào Zhāoshēng Dàgāng* (A Summary of the Syllabuses for 1960 Summer Examinations) (Beijing: People's Education, 1960).
  60. Political quality was measured primarily in terms of the candidates' "knowledge of and performance during the rectification and antirightist campaigns." Privileges were given to students from families of workers or peasants. Despite the acknowledgement that such candidates might be inferior in "book knowledge," the authorities insisted in training more politically reliable students with greater experience in class struggle. See *Rénmín Rìbào* (People's Daily), July 3, 1957.
  61. Yùliáng Zhōu (ed.), *Education in Contemporary China* (Hunan: Hunan Education Publishing House, 1990), p.379.
  62. *Dìwǔcè Zhōnghuámínguó Jiàoyù Niánjiàn (Shàng)* (The Fifth Education Yearbook of the Republic of China) (Taipei: Cheng Chung, 1976), Vol. 1, pp.891-894.
  63. See the "Provisional Working Regulations of Higher Education Institutes Directly Administered by the Ministry of Education of the People's Republic of China" which were issued by the Central Committee of the Chinese Communist Party in September, 1961. The "Provisional Working Regulations" are in *Zhōngguó Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949 - 1981) (Beijing: China Encyclopedia, 1984), pp.693-699.

64. *Zhōngguó Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949-1981) (Beijing: China Encyclopedia, 1984), pp.254, 295.
65. Yùliáng Zhōu (ed.), *Education in Contemporary China* (Hunan: Hunan Education Publishing House, 1990), p.409.
66. The course of the "Three People's Principles" was originally offered to first-year students, and carried four units. See Higher Education Department of the Ministry of Education, *Dàxué Kēmù biǎo Huìbiān* (A Catalogue of University Courses) (Taipei: Cheng Chung, 1961), p.2.
67. The course on the "Chinese History" was supposed to help students understand the CNP's version of how the Chinese Communists "ruined" China. Pictures and articles against the Chinese Communist were also encouraged to display publicly. See the "Directive Concerning the Implementation of Strengthening the Education of Students' Current Affairs" which is in *Jiàoyù Fǎguī Huìbiān* (A Collection of Education Acts) (Taipei: Commission of Acts, Ministry of Education, 1975), Vol.2, pp.1165-1166.
68. Prior to 1971, the minimum units for graduation imposed by the Ministry of Education were 142. After 1971, 128 units were required. See Patrick J. Kennedy, *Republic of China: A Study of the Education System of the Republic of China and a Guide to the Academic Placement of Students in Educational Institutions of the United States* (US: World Education Series, American Association of Collegiate Registrars and Admissions Officers, 1977), pp.38-41.
69. The purpose of the course was to consolidate the students' concept of the Three People's Principles, and to help them criticize communism from the framework of the official belief system of the ROC. After taking this course, students were supposed to have developed a strong anti-communist determination. See *Dìwǔcè Zhōnghuámínguó Jiàoyù Niánjiàn (Xià)* (The Fifth Education Yearbook of Republic of China) (Taipei: Cheng Chung, 1976), Vol.2, p.1449.
70. *Dìwǔcè Zhōnghuámínguó Jiàoyù Niánjiàn (Xià)* (The Fifth Education Yearbook of Republic of China) (Taipei: Cheng Chung, 1976), Vol.2, pp.1451-1452.
71. In Wǔ's book, except for the first and fifth chapters about Sūn Yìxiān's life and thoughts, the other four chapters attempted to demonstrate the superiority of the Three People's Principles over totalitarianism, communism, and capitalism. For instance, in Chapter Two, Wǔ accused capitalism of economic imperialism backed by the military; communism of hypocrisy and of being another version of imperialism; and fascism of militarism. In contrast, he upheld the Principle of Nationalism as one which promotes equity among nations, global peace, and righteousness. He condemned the Chinese communists as "anti-ethical,"

and suggested to Taiwanese students that they could wake up the people of the PRC with love and benevolence, and hence shatter the Chinese communists. The last chapter concludes that the Principles are the highest guidelines for the construction of a new China and a new world. See Ji-Píng Wǔ, *Guófù Sīxiǎng Jīběn Jiàocái* (Fundamental Teaching Materials on the Thought of the National Father, Sūn Yìxiān) (Taipei: Cheng Chung, 1977).

72. "Students' Military Training," in *Zhōngguó Jiàoyù Niánjiàn, 1989* (China Education Yearbook, 1989) (Beijing: People's Education, 1990), p.267.
73. Military training began with eight teachers training colleges in Taiwan in 1952, and was implemented across tertiary institutes, both public and private, in 1953.
74. See the circular concerning "The Guideline of Implementation of Compulsory Subjects in University" issued by the Ministry of Education on 8 August, 1983. The circular is in *Gāoděng Jiàoyù Fǎguī Xuǎnjí* (Selection of the Regulations of Higher Education) (Taipei: Department of Higher Education, Ministry of Education, 1990), pp.109-110.
75. For medical schools, fewer hours were required for campus military training. Medical students needed to spend 72 hours for the whole training.
76. "Students' Military Training," in *Zhōngguó Jiàoyù Niánjiàn, 1988* (China Education Yearbook, 1988) (Beijing: People's Education, 1989), p.328.
77. "Students' Military Training," in *Zhōngguó Jiàoyù Niánjiàn, 1988* (China Education Yearbook, 1988) (Beijing: People's Education, 1989), pp.326-327.
78. Yímín Lǚ, "Jiāng Zémín Zhīchí Dàxuéshēng Jūnxùn" (Jiāng Zémín Supported Military Training), *Zhēng Míng* (Cheng Ming Monthly), No.180 (October 1992), pp.30-31.
79. "Fùdàn Jūnxùn Xuéshēng Zhuózuàng Chéngzhǎng" (Students of Fùdàn University Grew Strongly after Military Training), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 14 July, 1992, p.1.
80. Article 2 of the directive concerning the "Method of Spiritual, Military, Physical and Practical Training for Senior High Schools and above during the Period of Suppression and Anticommunist Period." The directive was issued by the Ministry of Education on 8 April, 1952, and was revised in 1969. The directive is in *Jiàoyù Fǎguī Huìbiān* (A Collection of Education Acts) (Taipei: Commission of Acts, Ministry of Education, 1975), Vol.2, pp.865-868.

81. Quánxī Gāo, "Wǒguó Jūnxùn Jiàoyù De Yángé Yu Fāzhǎn" (The Tradition and Development of Military Training), *Jiàoyù Zīliào Wén Zhāi* (Selection of Educational Resources), May 1987, pp.41-47.
82. A detailed curriculum is in *Dìwǔcè Zhōnghuá mínguó Jiàoyù Niánjiàn* (Xià) (The Fifth Education Yearbook of Republic of China) (Taipei: Cheng Chung, 1976), Vol.2, pp.1412-1413.
83. In these textbooks, there was a particular section describing the ROC's version of how the Chinese communists of the PRC allied with other countries to contain its enemies including the ROC. The Military Department also condemned the policy of "one-country-two-systems" of the PRC as a means to regain Hong Kong and Taiwan. At the conclusion of this set of textbooks, the Military Department also emphasized potential military aggression by the PRC. See Military Training Department, Ministry of Education (ed.) *Dàxué Nánshēng Jūnxùn* (Military Training for Male University Students) (Taipei: Yòu Shī, 3rd ed., 1992), Vol. 3, pp.167-265; Vol. 4, pp.235-239.
84. Yùliáng Zhōu (ed.), *Education in Contemporary China* (Hunan: Hunan Education Publishing House, 1990), p.401.
85. Jizhu Zhang and Arthur L. Casebeer, "Political Counselors: A Unique Feature of China's Universities," *International Education*, Vol. 20, No. 2 (Spring 1992), pp.17-19.
86. The Chinese Communist Youth League was called by the CCP a "school of learning communism," a "helper of the Chinese Communist Party," and a "reserved army" in higher education institutes. See the Section on the functions of local Communist Youth Leagues of the "Regulation of the Chinese Communist Youth League" which have been revised several times since 1922. See particularly Article 29 of the 1957 revision, Article 30 of the 1964 revision, and Article 25 of the 1982 revision. All revised versions of the "Regulation" are in Wei Qiáng, Wáng Yáo, and Jīn Qiū (eds.), *Zhōngguó Gòngchǎn Zhǔyì Qīngniántuán Gōngzuò Dàcídiǎn* (Manual of the Chinese Communist Youth League) (Beijing: Beijing Yānshān, 1991), pp.814-864.
87. Yùliáng Zhōu (ed.), *Education in Contemporary China* (Hunan: Hunan Education Publishing House, 1990), p.405.
88. For instance, in 1990, there were 49 military officers (out of 1717 teaching staff) in 47 departments of the National Taiwan University, and 30 (out of 545 teaching staff) in 33 departments of the private Tanchiang University. See *Jiàoyù Fǎguī Huìbiān* (A Collection of Education Acts) (Taipei: Commission of Acts, Ministry of Education, 1975), Vol.2, p.1273; and *Zhōnghuá mínguó Dàzhuān Yuànxìào Gàikuàng Tǒngjì* (79 Xuéniándù) (General Statistics of Tertiary Institutions of Republic of China, 1990) (Taipei: Statistics Department, Ministry of

Education, 1990), pp.19-20, 32-33.

89. Relations between military and discipline officers overlapped in the structure of higher education of the ROC. In each higher education institution, a discipline committee was established for the supervision of students' behaviours. This supervisory duty was also assigned to military officers, lecturers, and administrative heads of institutions. See Section 3.2.1.3 of the "Directive Concerning The Implementation of Life Education," in *Jiàoyù Fǎguī Huìbiān* (A Collection of Education Acts) (Taipei: Commission of Acts, Ministry of Education, 1975), Vol.2, p.1149.
90. See the sample report sheet which is in *Jiàoyù Fǎguī Huìbiān* (A Collection of Education Acts) (Taipei: Commission of Acts, Ministry of Education, 1975), Vol.1, p.381.
91. Article 2 in the *Zhōnghuá Rénmín Gònghéguó Xuéwèi Tiáolì* (The Regulation of Degree Conferment of the People's Republic of China) which was promulgated on 12 February, 1980. The "Regulation" is in Zhèngguó Yuán (ed.), *Zhōngguó Dāngdài Jiàoyù Sīcháo, 1949 - 1989* (China's Contemporary Education, 1949-1989) (Shanghai: Joint Publishing Co., 1991), pp.304-305.
92. See the "Provisional Method Concerning the Unified Distribution of Graduates of Higher Education" which is in *Zhōngguó Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949-1981) (Beijing: China Encyclopedia, 1984), pp.794-796.
93. For details about the development of student movement in the PRC in 1989, see Liángzhù Fāng et al. (eds.), *Běizhuàng De Mínyùn* (June Four Massacre) (Hong Kong: Ming Pao Publication Co., 1989). For details about the student movement in the ROC in 1990, see Jīnshān Hé et al., *Táiběi Xuéyùn* (Student Movement in Taipei, 16-22 March, 1990) (Taipei: China's Times Publication Co., 1990).
94. Xīn Zhāi, "Zhōnggòng Gāocéng Quánlì Dàtānpái" (The Power Struggle at the Higher Level of the Chinese Communist Party), in *Jiǔshí Niándài* (The Nineties Monthly), June 1989, pp.19-22.
95. Tiěyǐng Lǐ, "Nǚlì Jiànshè Yǒu Zhōngguó Tèsè De Shèhuì Zhǔyì Jiàoyù Tǐxì" (Diligently Construct a Socialist Educational System with Chinese Characteristics: 1991 Report of the State Education Commission on 24 January 1991), *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 21 March, 1991.
96. Lǐ suggested that some people doubted the viability of Marxism and socialism in the PRC, and questioned how the CCP would further develop Chinese socialist society in such global crises. See Section One of "Gāojiào Yào Jīnyībù Kuòdà Duìwài Kāifàng" (Higher Education Must Further its Openness to the Outside World), in *Rénmín Rìbào*

*Hǎiwàibǎn* (People's Daily, overseas edition), 3 July, 1992, p.3.

97. Cuī Yùnxǐ also mentioned the advantages brought by the incorporation of market mechanisms in the Chinese socialist economy. The advantages included the introduction of new concepts such as competition, effectiveness, innovation, fairness, duties and rights. See Yùnxǐ Cuī, "Wùbì Bùyào Hūshì Sixiǎng Zhèngzhì Gōngzuò" (Do Not Neglect Ideological and Political Work), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 6 January, 1993, p.3. For "bad" socio-political influences of market forces on the PRC, see also the Editorial of the *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 25 June, 1993.
98. For example, in Beijing in 1992, there were 2,961 cases of corruption and 1,116 party members were "punished." See *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 19 June, 1993, p.1.
99. These two surveys conducted by the State Education Commission were the "General Survey about the Political Situation, Learning and Order in Higher Education of the PRC" (March 1991) and the "Survey Concerning the Recent Situation of Students in Higher Education" (march 1992). See Jiémín Guān, "Quàncuó Gāoxiào De Wēijī" (The Crisis of Higher Education of the Whole Country [the PRC]), in *Zhēng Míng* (Cheng Ming Monthly), No. 176 (June 1992), pp.20-21.
100. Those ten universities which were classified by the State Education Commission as having the highest possibility to generate social uprisings were the Ānhuī University, Běijīng University, Běijīng Normal University, Běijīng University of Aviation, Chóngqīng University, Húnán University, Nánjīng University, Northwest University, Sìchuān University, and Wǔhàn University. Those universities which were perceived as less threatening included the Chinese People's University, Chinese University of Science and Technology, Zhèjiāng University and Fùdàn University.
101. "The Discussion of the Politburo of the Central Committee of the CCP about Several Key Problems concerning Reform and Development: To Grasp Strongly the Party Line and Make it Unshakable for 100 Years; and to Grasp the Opportunity to Quicken Reform and Opening up so as to Improve the Economy," in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 12 March, 1992, p.1. See also *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 21 June, 1993, p.1.
102. See Section Three of the "Gāojiào Yào Jìnyībù Kuòdà Duìwài Kāifàng" (Higher Education Must Further its Openness to the Outside World), in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 3 July, 1992, p.3; and Yùnxǐ Cuī, "Wùbì Bùyào Hūshì Sixiǎng Zhèngzhì Gōngzuò" (Do Not Neglect Ideological and Political Work), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 6 January, 1993, p.3.



103. "The Revision of the Constitution of the People's Republic of China," in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 30 March, 1993.
104. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 26 June, 1993, p.1; and *China Daily*, 26 June, 1993, p.1.
105. "Gāojiào Yào Jīnyībù Kuòdà Duìwài Kāifàng" (Higher Education Must Further its Openness to the Outside World), in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 3 July, 1992, p.3.
106. Tiěyǐng Lǐ, "Nǚlì Jiànshè Yǒu Zhōngguó Tèsè De Shèhuì Zhǔyì Jiàoyù Tǐxì" (Diligently Construct a Socialist Educational System with Chinese Characteristics: 1991 Report of the State Education Commission on 24 January 1991), *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 21 March, 1991.
107. Article 28, in the Central Committee of the Communist Party of China and State Council, "Zhōngguó Jiàoyù Gǎigé He Fāzhǎn Gāngyào" (Guidelines of China's Educational Reform and Development), *Wénhuì Bào* (Shanghai), 27 February, 1993.
108. Article 3, in the Central Committee of the Communist Party of China and State Council, "Zhōngguó Jiàoyù Gǎigé He Fāzhǎn Gāngyào" (Guidelines of China's Educational Reform and Development), *Wénhuì Bào* (Shanghai), 27 February, 1993.
109. See the Editorial of the *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 26 June, 1993, p.1.
110. A. C. Grayling, "Academic Freedom," in Susan Whitfield (ed.), *June Fourth Briefing Papers on China* (London: June 4th China Support, 1993), pp.36-38.
111. Section Three of the "Gāojiào Yào Jīnyībù Kuòdà Duìwài Kāifàng" (Higher Education Must Further its Openness to the Outside World), in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 3 July, 1992, p.3.
112. Section Two, Ibid.
113. Ibid.
114. Article 27 of the "Guójiā Jiàowěi Zhíshǔ Gāoxiào Quánmiàn Tuīxiàng Nèibù Guǎnlǐ Tǐzhì Gǎigé" (Full Scale Promotion of Reform, in Internal Administrative Structure within Higher Education Institutions Directly Under the State Education Commission), in *Guāngmíng Rìbào* (Guangming Daily), 23 August, 1992.

115. "Běijīng Shì Gāoxiào Nèibù Guǎnlǐ, Tǐzhì Gǎigé Qǔdé Chéngxiào" (Success in the Reform of Internal Administrative System in Higher Education of Běijīng), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 14 April, 1992, p.1.
116. Article 38, in the Central Committee of the Communist Party of China and State Council, "Zhōngguó Jiàoyù Gǎigé He Fāzhǎn Gāngyào" (Guidelines of China's Educational Reform and Development), *Wénhuì Bào* (Shanghai), 27 February, 1993.
117. Article 40, in the Central Committee of the Communist Party of China and State Council, "Zhōngguó Jiàoyù Gǎigé He Fāzhǎn Gāngyào" (Guidelines of China's Educational Reform and Development), *Wénhuì Bào* (Shanghai), 27 February, 1993.
118. Yùnxǐ Cuī, "Wùbì Bùyào Hūshì Sīxiǎng Zhèngzhì Gōngzuò" (Do Not Neglect Ideological and Political Work), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 6 January, 1993, p.3.
119. Section Two of the "Gāojiào Yào Jīnyībù Kuòdà Duìwài Kāifàng" (Higher Education Must Further its Openness to the Outside World), in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 3 July, 1992, p.3.
120. "Běijīng Gāoxiào Déyù Yánjiū" (Study of Moral Education, in Higher Education of Běijīng), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 6 January, 1993, p.1.
121. State Education Commission, *The Development and Reform of Education in China, 1988-1990: A National Report on Education Presented to the 42nd Session of the International Conference on Education, Geneva, 1990* (Beijing: State Education Commission, 1990), p.144.
122. Xīnjūn Zhū, "Zhuāzhù Yǒulì Shíjī Jiāqiǎng He Gǎijìn Sīxiǎng Zhèngzhì Gōngzuò" (Seize the Favourable Opportunity, Strengthen and Improve Ideological and Political Work), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 6 January, 1993, p.3. See also Article 29, in the Central Committee of the Communist Party of China and State Council, "Zhōngguó Jiàoyù Gǎigé He Fāzhǎn Gāngyào" (Guidelines of China's Educational Reform and Development), *Wénhuì Bào* (Shanghai), 27 February, 1993.
123. The President of the Běijīng University admitted in March 1993 that the reduction of training period was the state's response to strong dissatisfaction expressed by students, parents and teachers. See *Huáqiáo Rìbào* (Wah Kiu Daily News), 26 March, 1993.
124. *Zhōngguó Qīngnián Bào* (Chinese Youth Daily), 8 March, 1993.

125. "Lǐ Tiěyǐng Dá Měiquó Xīnwén Zhōukān Jìzhě Wèn" (Lǐ Tiěyǐng Interviewed by a Journalist of *Newsweek*), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 30 March, 1993, pp.1, 4.
126. Lǐ explained that the authorities of the Chinese People's University adopted a biannual admissions policy for courses like scientific socialism, international communist movement; raised the courses on Marxism and Chinese revolutionary history to the research level; and changed the course title of national economic planning to national economic management.
127. *Huáqiáo Rìbào* (Wah Kiu Daily News), 26 March, 1993.
128. "Short Comment" in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 27 December, 1990, p.1.
129. "Pǔtōng Gāoxiào Jiàoyù Pínggū Zànxíng Guīdìng Fābào" (The Promulgation of the Provisional Regulations Concerning the Assessment and Evaluation of General Higher Education), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 27 December, 1990, p.1.
130. For the detailed list of areas of assessment, see State Education Commission, "Guójiā Jiàowěi Tíchū Gāoděng Xuéxiào Bànxué Shuǐpíng Zōnghé Pínggū Fāng'àn (Cǎogǎo)" (A Comprehensive Assessment Scheme About the Performance of Higher Education Institutions Directly Administered by the State Education Commission, Draft), in *Gāojiào Pínggū* (Higher Education Evaluation), No. 2 (1992), pp.10-13, 18.
131. See, for example, the assessment scheme devised by the Guangdong Province, in *Gāojiào Pínggū* (Higher Education Evaluation), No. 2 (1992), p.22.
132. The list of these supporters and their letter to the Legislative Yuan are in Dǎfēn Hè, *Dàxué Zhī Zàishēng* (The Rebirth of Universities) (Taipei: Times Cultural Publishing House, 1990), pp.254-269.
133. Universities with teacher associations included the National Taiwan University, Cheng Kung University, Chiao Tung University, and Central University.
134. These university teacher associations specifically asked for the revision of the University Act; the abolishment of the state-appointed president system in national higher education institutions; the administration of university by professors; the elimination of the assessment of teachers' publications by the Ministry of Education; the revision of the ideological courses like military training and the "Thoughts of Sūn Yìxiān"; and the removal of party organizations from campuses. See the newsletters of these university teacher associations selected in Dǎfēn Hè, *Dàxué Zhī Zàishēng* (The Rebirth of Universities) (Taipei: Times Cultural Publishing

House, 1990).

135. An account of the development of the withdrawal of some teachers from the university association of the National Taiwan University is in Wénjīng Wēng, "Qízhì Xiǎnmíng De Zìyóupài Jǐtǐ Tuìchū liǎo Jiàoliánhuì" (The Public Withdrawal of Liberal Teachers from the University Teacher Association), in *Xīn Xīnwén Zhōukān* (New Newsweek), 26 June, 1989.
136. In 1992, the presidents of four state universities (National Chiao Tung University, National Ocean University, National Chenghua University of Education, and Provincial Tainan Teachers College) finished their terms of office. The Ministry of Education established a selection committee of president for each university to recommend several candidates for the Ministry of Education to choose and appoint. A fifth selection committee was established for the selection of the President of the National Kaoshiung Normal University whose former president was removed from his office by the Ministry of Education because of his confrontation with the university teacher association.
137. The selection committee comprises 9-15 members who are representatives from the teachers and alumni association of the university concerned, outstanding academicians outside the university, and officials of the Ministry of Education. The representative teachers can be decided by the university itself or appointed by the Ministry of Education. The number of representative teachers should not be less than half of the total number of committee members. Successful candidates for presidencies must obtain the recommendation by two-third of the members in the selection committee. The committee would then recommend 2-3 nominees to the Ministry of Education for its consideration. See *Zìyóu Shíbào* (Freedom Times), 18 December, 1992.
138. *Zhōngyāng Rìbào* (Central Daily News), 5 March, 1993.
139. The criteria of the selection of the presidents of the National Taiwan University and National Taiwan Normal University are listed respectively in "National Taiwan University Publicly Recruits the Candidates for its President," in *Zhōngyāng Rìbào* (Central Daily News, international edition), 19 February, 1993, p.7; and "National Taiwan Normal University Publicly Recruits its President," in *Zhōngyāng Rìbào* (Central Daily News, international edition), 6 April, 1993, p.7. The two sets of criteria are also in the *Shūdà Xiǎoxùn* (News Bulletin of the National Taiwan Normal University), No. 71 (13 April, 1993), p.3.
140. These applicants must be nominated either by a group of individuals (who can be current or retired research fellows of Academia Sinica, professors or assistant professors at home or abroad, researchers or assistant researchers), by any academic or professional organization registered with the Interior Ministry, or by alumni associations and

student unions. The Ministry of Education is only one of the professional organizations.

141. "The Ministry of Education will not Nominate Candidate for Competition for the Post of the President of the National Taiwan Normal University," in *Zhōngyāng Rìbào* (Central Daily News, international edition), 16 April, 1993, p.7.
142. "Concentrate on Educational Affairs," in *Zhōngyāng Rìbào* (Central Daily News, international edition), 3 April, 1993, p.2.
143. In January 1992, the Ministry of Education admitted that it did not exclude the possibility of establishing religious colleges in the new state universities, Huádōng University and Jínán University, but rejected any proposal for the establishment of religious colleges which would transmit a single set of religious values. However, a few months later, the Ministry of Education revealed that it was considering the possibility of allowing higher education institutions to establish single-religion institutes, and to explore the feasibility of establishing religious courses as part of general education for undergraduates. See "Dàxué Shè Zōngjiàoxì" (The Ministry of Education is Optimistic About the Establishment of the Department of Religion in Higher Education), in *Hǎiwài Xuérén* (Overseas Scholars), No. 233 (January 1992), p.22; and *Gāojiào Jiǎnxùn* (Higher Education Bulletin), No. 14 (10 May, 1992), p.2.
144. *Zhōnghuá mínguó jiàoyù tǒngjì (Míngguó 80 Nián)* (Educational Statistics of the Republic of China, 1991) (Taipei: Ministry of Education, 1991), pp.153-154.
145. Diana Lin, "Taiwan History Institute heralded as a milestone," in *Free China Journal*, 9 April, 1993, p.4.
146. "Crucial Personnel of the Institute of Taiwan History" in *Zhōngyāng Rìbào* (Central Daily News, international edition), 29 March, 1993, p.7.
147. Students can be exempted from taking two language subjects, Chinese and English, depending on the requirements of individual higher education institutions. The "Revised List of Common and Compulsory Subjects" was promulgated by the Ministry of Education on 3 October, 1992. In other words, the power of choosing languages as undergraduate requirements was devolved upon individual higher education institutions. The "Revised List" is in *Guólì Jiàoyù Zīliào Guǎn Guǎnxùn* (Bulletin of National Educational Information Institute), No. 19 (December 1992), p.24.
148. The attempt to integrate these two courses began in 1991. The lecturers of the "Thoughts of Sūn Yīxiān," like those European academics who defended their "cultural" subjects at the emergence of industrialization in the 19th and early 20 centuries, offered resistance to such integration.

This controversy was ended at the policy formulation level when the presidents of all higher education institutions showed their support for this change in June 1992. See "Dàxué Bìxiū Kěmù Fùyǔ Gèngdà Kōngjiān" (Give More Room for the Compulsory Subjects in Higher Education), in *Hǎiwài Xuérén* (Overseas Scholars), No. 242 (October 1992), p.16.

149. Point 1 of the "Key Points of the Implementation of Common and Compulsory Subjects" which was issued by the Ministry of Education on 3 October, 1992. The "Key Points" are in *Guólì Jiàoyù Zīliào Guǎn Guǎnxùn* (Bulletin of National Educational Information Institute), No. 19 (December 1992), p.25.
150. The "Revised List of Common and Compulsory Subjects" is in *Guólì Jiàoyù Zīliào Guǎn Guǎnxùn* (Bulletin of National Educational Information Institute), No. 19 (December 1992), p.24.
151. Quánxiāng Hóng, *Zhōnghuámínguó Xiànfǎ Yu Lìguó Jīngshén* (The Constitution and Founding Spirit of the ROC) (Taipei: Yòu Shī, 1993).
152. Point 11 of the "Key Points of the Implementation of Common and Compulsory Subjects" in *Guólì Jiàoyù Zīliào Guǎn Guǎnxùn* (Bulletin of National Educational Information Institute), No. 19 (December 1992), p.25.
153. Article 31 of the "Regulation Concerning the Academic Status of Students of Universities and Independent Colleges" which was amended in September, 1991. The amended "Regulation" is in *Guólì Jiàoyù Zīliào Guǎn Guǎnxùn* (Bulletin of National Educational Information Institute), No. 12 (October 1991), pp.26-27.
154. Article 11, in Legislative Yuan, *Lǐfǎyuàn Yìàn Guǎnxì Wénshū: Dàxuéfǎ* (Documents of Legislative Yuan: The University Act), which was passed on 7 December 1993.
155. "Adjustments in Policies: Changes are underway in long-term policies on Taiwan-mainland unification and immediate practical issues concerning developing relations," in *Free China Review*, January 1991, p.20.
156. "Guidelines for National Unification," in *Free China Review*, September 1991, p.44.

## **CHAPTER FIVE**

### **IMPORTATION OF SCIENCE AND TECHNOLOGY INTO THE PRC AND ROC**

#### **5.1 PURPOSE AND ARGUMENT**

This chapter sets out to trace the importation of science and technology into the PRC and ROC between 1949 and 1993. The chapter will first provide an overview of the relations of science and technology with economy, culture and society; and second, highlight these relations in the PRC and ROC.

This chapter argues that in the past forty-four years the importation of foreign science and technology had implications for the economic and socio-political contexts of the PRC and ROC: they have accommodated foreign science and technology for pragmatic purposes, while injecting them with domestic socio-political values.

The line of argument of this chapter is as follows. First of all, because science and technology are economic and cultural goods, the transfer of science and technology is both an economic transaction and intercultural activity between countries in the world system. As economic goods, science and technology are used for the improvement and sustenance of national economies respectively in both developing and developed countries. As cultural goods, science and technology have their own evaluation system, and are associated with certain set(s) of socio-economic and cultural patterns of relations and values of the society in which activities of science and technology are conducted. Therefore, the importation of foreign science and technology

by developing countries from developed countries means, at least the partial, the incorporation of these relations and values from developed countries, and interactions between aspects of foreign and domestic socio-political cultures in developing countries.

Moreover, foreign science and technology were imported by the PRC and ROC for economic purposes, and this was justified, as a social construction, for socio-political purposes. The PRC and ROC incorporated foreign science and technology for the same economic purposes – the closing of the economic, scientific and technological gap between their respective countries and developed countries. However, the PRC and ROC adopted different strategies. The PRC changed supply-source from the USSR to Western countries in the 1970s, and consistently emphasized heavy industries. The ROC relied mainly on Western countries for their science and technology, and changed their emphasis gradually from agricultural to heavy and technology-intensive industries.

However, the ruling elites of the PRC and ROC re-interpreted the functions of foreign science and technology and incorporated the re-interpretations into their respective central value systems. The PRC stressed socialist modernization, and offered justification on ideological grounds for accessing Western science and technology. The ROC entrusted imported science and technology with an ideological mission to recover mainland China and to transform traditional Chinese culture.

This chapter begins with a brief discussion about the relations of science and technology with the economy, culture and society so as to provide a



context of understanding concerning the importation of science and technology into the PRC and ROC.

## **5.2 RELATIONS OF SCIENCE AND TECHNOLOGY WITH ECONOMY, CULTURE AND SOCIETY IN THE WORLD SYSTEM**

This section argues that the importation of science and technology from developed countries by developing countries is an international economic and intercultural activity.

Before discussing the economic and socio-political nature of the importation of science and technology from developed countries into developing countries, it is necessary to define science and technology, and to understand the relationship between them.

### **5.2.1 Science and Technology: Their Definitions and Relations**

The thesis accepts the view of a general distinction between science and technology. Whilst science represents the pursuit of knowledge about the nature, technology is the application of science to exercise control over people's physical environment, including nature.<sup>1</sup>

However, the thesis rejects the linear relation between science and technology: the precedence of science over technology, or science-based technology.<sup>2</sup> Science and technology are rather seen as inter-related and interdependent human activities planned and conducted in given (economic, socio-political and cultural) contexts which involve continuous generation and utilization of knowledge about the physical world for human development.<sup>3</sup> The transfer of science and technology is defined as a process of acquisition

of these innovative activities by secondary users.<sup>4</sup> Hardware (such as a physical system for production) or software (such as knowledge for the smooth running of this system) may be involved in the process of transfer. The next two sections will discuss the relations of science and technology with their contexts – economic, and socio-political.

### **5.2.2 Transfer of Science and Technology as Economic Goods in the World Economy**

This section argues that science and technology are economic goods created and purchased by countries for the purposes of accumulating capital in the world economy. The importation of science and technology from developed countries by developing countries is part of the international division of labour. The states of receptor countries are actors in controlling the types of science and technology transferred across their territorial boundaries, and the utilization of science and technology for domestic economic purposes.

#### **5.2.2.1 Science and Technology and Economic Growth**

Science and technology have been seen as a key to the accumulation of capital in both developed and developing countries. Ralph Landau and Nathan Rosenberg argue that technology determines the economic growth and therefore the future of a country.<sup>5</sup> In the 1960s, the United Nations suggested that the utilization of science and technology in advanced countries can widen their economic gap with poor countries; however, if used appropriately in less developed countries (LDCs), science and technology can narrow the gap between them and the better-off countries.<sup>6</sup> This also means that with the

help of science and technology, developed countries can maintain their economies; whereas developing countries can improve their economies. Jolla Price has suggested an empirical relationship between the GNP of a country and its investment on science and technology: the higher the investment in science and technology, the larger the output of science and technology research results, and the greater is the GNP of a country.<sup>7</sup> In 1988, the Organization of Economic Cooperation and Development (OECD) suggested that technological change can increase the growth of labour productivity, and industrial output.<sup>8</sup> Therefore, science and technology become economic goods which are created or purchased by countries for the pursuit of capital in the world economy.

#### **5.2.2.2 Sources of Import**

The transfer of science and technology, this thesis argues, is governed by international economic forces and dominated by core countries over semi-peripheral and peripheral countries in the world system. The domination of core countries is a result of the unequal distribution of material and human resources. These countries control most of the world research and development (R&D) expenditure, and world researchers in the field of science and technology. In 1973, six developed countries (the US, USSR, Japan, West Germany, France, and United Kingdom) possessed 72% of the world's researchers, and spent 83% of all R&D funds. In contrast, developing countries controlled less than 3% of the world's R&D funds and had about 12% of the world's scientists and engineers.<sup>9</sup> The disparity in distribution

continued to exist in the 1980s,<sup>10</sup> and is probably continuing in the 1990s.

Science and technology, as observed by some scholars,<sup>11</sup> are transferred within industrially advanced countries; from developed countries in the north to newly industrialized countries in Latin America (e.g. Brazil, Mexico, and Argentina) and in Asia (e.g. Hong Kong, Singapore, South Korea, and Taiwan); and from developed countries and these newly industrialized countries to other developing countries.<sup>12</sup>

Developing countries can access foreign science and technology mainly through commercial transactions with multinational corporations predominantly based in industrially advanced countries and in newly industrialized countries. The ways of importation include foreign direct investment, multiple or exclusive licensing, joint venture with or without licensing, and coproduction with foreign counterparts.<sup>13</sup>

#### **5.2.2.3 Types of Imported Science and Technology**

This thesis argues that despite the domination of developed countries over the transfer of science and technology, the states of developing countries, if they wish, can determine the types of imported science and technology. In the 1960s, many developing countries adopted a capital-intensive approach in their importation of foreign science and technology. The United Nations suggested that the importation of modern Western science and technology into LDCs could facilitate the process of modernization by saving time and effort spent on generating science and technology which had been tested in advanced countries.<sup>14</sup> Complete sets of equipment and plants were transferred from

Western countries to the Third World so that the buyers could immediately embark on production.

Yet, the "whole plant" approach was challenged in the 1970s by the fact that the economic conditions of Third World countries had not improved because Third World countries lacked both capital to purchase new plants and personnel with adequate knowledge and skills to maintain existing plants. The large labour force in these countries was also under-utilized. Francisco R. Sagasti argued from a Latin American perspective in 1979 that the capital-intensive approach, instead of improving the technological level of Third World countries, had caused them to become more technologically reliant on supplying countries.<sup>15</sup>

Scholars and the United Nations in the 1970s and 1980s proposed alternative strategies to the capital-intensive approach, and encouraged the states of developing countries to make decisions over the importation of types of foreign science and technology according to their domestic conditions. In terms of objective, these strategies can be broadly classified as a "basic needs" approach.<sup>16</sup> This approach emphasized the fulfillment of the minimum requirements of the local people "for private consumption, adequate food, shelter, clothing, ... sanitation, public transport and health and educational facilities."<sup>17</sup> The harmony between the progress of science and technology and the order and manner of domestic priorities of LDCs is emphasized in the basic needs approach.

Ernst F. Schumacher proposed that "intermediate technology" should be encouraged in LDCs as it represents industrial processes requiring capital

investment affordable by LDCs. The raw materials for production are supplied mainly from the LDCs, and the industrial output is also essentially for local use in LDCs.<sup>18</sup> Similarly, Marja-Liisa Swantz suggested the use of appropriate technologies, utilizing mainly labour-intensive and low capital investment programmes.<sup>19</sup> Sosthenes Buatsi demonstrates that proper planning in the choice of imported science and technology was a factor leading to the success of some cities in Asia.<sup>20</sup> Other studies also show that national policies formulated by the state were another successful factor in some Asian countries.<sup>21</sup> In other words, the states of developing countries can be an actor in making decision over the types and sources of imported science and technology for the improvement of their national economies.

However, the importation of foreign science and technology by developing countries was not merely an economic transaction or simply technical in nature, but also involved socio-political and cultural dimensions. This will be discussed in the next section.

### **5.2.3 Transfer of Science and Technology as Cultural Goods in the Interstate System**

This section describes the evaluation system of science and technology adopted by the scientific community, the relations of science and technology with external values, and the interactions of foreign and domestic socio-political and cultural forces when science and technology are imported by developing countries from developed countries.

This section argues that the importation of science and technology as cultural goods from developed countries to developing countries is an

intercultural activity. Science and technology as academic disciplines have their internal evaluation system. Science and technology expressed in the form of knowledge and skills are not free from socio-political or cultural values. In other words, science and technology are associated with the socio-economic and cultural relations and values of society in which activities of science and technology are conducted. Therefore, the importation of science and technology from developed countries into developing countries means the incorporation of the internal value system of science and technology and their associated relations and values in developed countries into developing countries.

However, these imported relations and values can be modified according to domestic cultural and socio-political preferences by the states of receptor countries.

The section will first discuss the internal evaluation system of science and technology.

#### **5.2.3.1 Internal Value System of Science and Technology**

Science and technology as academic disciplines, it is argued in this thesis, have their own value system(s) to justify the validity of existing scientific knowledge, to incorporate new theories to replace the old ones, and to reject ill-found theories.

Scientists and technologists need certain criteria from within or outside the scientific community to evaluate the validity of the results of observation or descriptive accounts of discovery about the natural world. Karl Popper and

Thomas S. Kuhn, despite different approaches, advocated that science and technology have their own criteria to evaluate existing and potential scientific knowledge. Popper regarded all science as tentative, and argued that theories are classified into two groups: those which have been conjectured and falsified; and those which are conjectural and await possible falsification.<sup>22</sup> Kuhn suggested that science has five principles to evaluate the adequacy of a theory: demonstrability; internal and external consistency; generalization; simplicity and coherence; and fruitfulness.<sup>23</sup>

In other words, science and technology as academic disciplines per se are not value free, and are ultimately interpreted and determined by a person or a group of people in accordance with certain set(s) of criteria. Therefore, the importation of science and technology as academic disciplines by developing countries implies the incorporation of the internal evaluation system of science and technology adopted by the scientific community in the world. Moreover, the introduction of foreign science and technology, as examined in the next section, in developing countries may incorporate foreign patterns of relations and values together with imported science and technology.

#### **5.2.3.2 Science and Technology and Their Links with External Value Systems**

This thesis further argues that science and technology are not neutral, but are linked with external value systems. Science and technology shape and are shaped by society and culture.

In contrast to those who attempted to separate science and technology



from the domain of values,<sup>24</sup> this thesis argues that science and technology are value-laden, and replete with personal interests and incorporate social values.<sup>25</sup>

In other words, the importation of foreign science and technology by developing countries also means the incorporation of the perceptions and interpretations of the natural world by scientists and technologists in supplier countries.

At the social level, the evolution of new science and technology, it is further argued in this thesis, creates alternative patterns of socio-economic relations and values to ones already existing in society. The development of science and technology is influenced by political and cultural preferences and constraints in a given society.<sup>26</sup>

Science and technology, it has been argued by many scholars, introduce new patterns of socio-economic relations and values in society. Jacques Ellul and George McRobie argue that technological factors are the decisive factor in generating socio-economic progress or changes.<sup>27</sup> Mitra Das and Shirley Kolack also argue that new technology has its "own ethos" and demands new forms of work relations and orientation to the means of production. New technology also results in "discontinuity" in the identity, values, and social roles of a society.<sup>28</sup> The introduction of science and technology improves material and technical conditions. However, material improvement initiates a corresponding change in people's attitudes, thoughts, values, beliefs, and behaviours.<sup>29</sup>

In particular, the science and technology revolution brought forth

specialization as a new pattern of working relations amongst people. Specialization is a kind of division of labour, and give rise to many professional associations and codes of practice in society. However, specialization brought by the science and technology revolution, as argued by Stanley A. Hetzler, disengages individuals from the work area, deprives people of their satisfaction of whole authorship during the production process, dehumanizes all classes of people under the steady pressure of competition, and encourages the promotion of the concept of using science and technology to remedy social maladies.<sup>30</sup> Moreover, the science and technology revolution brought about further division of labour; and therefore more technological, but less social interdependence.<sup>31</sup>

On the other hand, science and technology are shaped by socio-political and cultural forces in a given society. Donald MacKenzie and Judy Wajcman argue that production technology, domestic technology and military technology represent their direct or indirect shaping by a social relation or a set of social relations. Direct social shaping of technology generally occurs when the creation or maintenance of a desired social relation enters into the choice of technologies; whereas indirect social shaping takes place when economic calculations and implications are considered.<sup>32, 33</sup> The allocation of funding for science and technology also indicates the economic interests of the commercial and industrial sectors, the political concern of government, and the social preferences of the public.

Therefore, science and technology influence existing socio-economic and cultural relations and values which in turn determine the priorities and

development of science and technology. These relations are specific to the society in which science and technology are conducted. If science and technology are transferred from developed to developing countries, these relations may also be reproduced in developing countries.

However, these relations in developing countries, as discussed in the next section, may not be a simple replication of those in developed countries.

### **5.2.3.3 Science and Technology Transfer as Intercultural Activities**

This thesis notes that the importation of science and technology by developing countries involves domestic political considerations (in addition to economic ones) when this kind of transfer is dominated by developed countries. Some scholars argue that the international transfer of science and technology would enhance global economic integration, and would be mutually profitable to transferrers and transferees.<sup>34</sup> However, as noted by Sagasti, it is not true for many Third World countries which were further exploited by developed countries because of the latter's technological domination.<sup>35, 36</sup> M. R. Bhagavan argues that science and technology are the "third great force" (after political and economic forces) of Western countries to enable them to penetrate other countries of the world.<sup>37</sup>

The domination of Western countries over developing countries has been seen along two dimensions: the economic, and military. Economically, for developing countries to gain access to and the use of Western science and technology, they need to pay, on a continuing basis, fees or loyalty to, or even share their economic profits with Western countries. Militarily, the diffusion

of high technologies to developing countries is restricted by developed countries so as to create disproportionate disparity in military capacities between these two types of countries. Therefore, economic control, technological diffusion and leadership become important topics of political concern to the governments, particularly of developing countries, in the formulation of science and technology policy.<sup>38</sup> Ward Morehouse proposed that in order to minimize the control by developed countries, the states of developing countries should develop their capacity for directing technological change towards meeting domestic economic and social problems.<sup>39</sup>

Moreover, the transplantation of foreign science and technology to developing countries involves cultural dimensions: it may introduce new socio-economic and cultural patterns of relations and values to developing countries as the scientific and technological revolution did in developed countries. Donald MacKenzie and Judy Wajcman observed that the same technology can have dissimilar effects in different societies.<sup>40</sup> David Jeremy believes that domestic cultural forces can shape the form of the imported technology; and, together with domestic economic forces, even modify or transform it.<sup>41</sup>

The importation of science and technology also created problems for working relations in developing countries. Michael Campbell notes that social tensions existed in emerging bureaucracies in the developing countries of Southeast Asia and South Pacific.<sup>42</sup> These tensions were between "generalist managers" and technocrats. According to Campbell, "generalist managers" were those personnel of middle and senior management levels who operated

within political and environmental constraints, and were sensitive to domestic cultural values. In contrast, technocrats were those who were trained in industrialized countries. These technocrats insisted on professional values and were not sensitive to "political and environment parameters." The tensions, according to Campbell, include discrepancies in viewpoints and sets of values, and miscommunication between "generalist managers" and technocrats.

To sum up, the importation of science and technology from developed countries by developing countries may involve their mutual, though not necessarily equal, pursuit of capital; the incorporation of the internal evaluation system(s) of science and technology; and the introduction of foreign socio-economic and cultural relations and values associated with imported science and technology. Moreover, science and technology transfer is complicated by domestic socio-political and cultural forces.

In the rest of this chapter, the thesis will illustrate the complicated nature of the relationship between imported science and technology and the domestic economy, culture and society in both the PRC and ROC. This thesis discusses separately the relations of science and technology with the economy, and with society and culture. It should be noted that despite discussions in two separate sections, the importation of science and technology into the PRC and ROC involved an interplay of economic, socio-political and cultural forces.

### **5.3 SCIENCE AND TECHNOLOGY, AND THE ECONOMY IN THE PRC AND ROC**

This section describes the relations of science and technology with the economy in the PRC and ROC, and their respective strategies for using science

and technology for economic purposes.

This section argues that the ruling elites of the PRC and ROC, like Sūn Yìxiān, identified science and technology as economic forces with potential to reduce economic gaps (expressed in terms of GNP) with Western countries, but adopted different strategies in the utilization of science and technology and in the importation of foreign science and technology. Both the PRC and ROC lacked sufficient manpower and the necessary infrastructure of science and technology for economic modernization. To improve the infrastructure, these two Chinese countries established a special state agency and formulated national plans to direct the domestic development of science and technology, and the importation of foreign science and technology. However, the PRC and ROC differed from each other in emphases on the development of science and technology.

Moreover, the PRC and ROC differed from each other in their strategies for importing foreign science and technology. In terms of supplying countries, the PRC first turned to the former USSR, and then mainly to Western countries; whereas the ROC relied on Western countries throughout. In terms of the types of imported science and technology, the PRC started with capital-intensive heavy industry, and then fluctuated between appropriate technology and technology-intensive industries; whereas the ROC emphasized "appropriate technology" in the 1950s and 1960s, and gradually moved towards capital- and technology-intensive industry in the 1980s.

The development of the argument of this section begins with the description of the strategy used by Sūn Yìxiān to improve the economy of

early Republican China.

### 5.3.1 The Path of Sūn Yìxiān

In the early 1910s, i.e. much earlier than the United Nations, Sūn Yìxiān addressed the problems of basic needs in mainland China and advocated the use of science and technology to reduce the economic disparities between China and Western countries. Sūn spelt out that the basic goal of economic modernization of China was to meet the Chinese people's basic needs: food, clothing, shelter, and transportation.<sup>43</sup>

Sūn identified science and technology as means to improve the productivity of the national economy. In the agricultural sector, he proposed seven ways for the adaptation of science and technology techniques to increase agricultural production.<sup>44</sup> In the industrial sector, he suggested employing advanced science and technology to establish the basic industrial infrastructure of China; to exploit natural resources including mineral ores; and to develop selected industries. These industries were supposed to increase the supply of food, to improve the quality of clothing and home facilities, and to raise the standards of transport and printing.<sup>45</sup> Sūn also believed that science and technology could improve the military arsenal of China for purposes of self-defence.<sup>46</sup> Despite his realization that Chinese science lagged behind the standards of Western European countries by two hundred years, Sūn was too optimistic in thinking that China could catch up with Western countries in "several years" through learning from them.<sup>47</sup> Sūn's dream could not be realized within the life-time of Sūn, and needed to be carried further by his

successors, Máo Zédōng and Jiǎng Jièshí, respectively in mainland China and Taiwan.

### **5.3.2 Goals and Indicators of Economic Modernization of the PRC and ROC**

The ruling elites of the PRC and ROC, it is argued in this section, set economic improvement as a national goal for their respective Chinese peoples. In particular, leaders of both Chinese countries used the reduction of the difference in their GNPs with developed countries as an indicator for reaching the economic level of developed countries.

The ruling elite of the PRC has made many claims about the reduction of the economic gap with developed, particularly Western, countries in the past forty-four years. According to the estimation of a Chinese engineer, Guō Kē, the agricultural and industrial levels of the PRC in the early 1950s were, respectively, equivalent to the corresponding levels of Europe in the 19th century, and in the late 19th and early 20th centuries.<sup>48</sup> With such a weak infrastructure, Máo Zédōng stated in 1957 the goal of overtaking the US economically in 50 or 60 years.<sup>49</sup> In 1958, the Politburo even issued a call to supersede Britain in steel production in fifteen years.<sup>50</sup> The ruling elite also decided to construct a "comprehensive industry system" with particular emphasis on heavy industry, and expected that many important branches of science and technology would approach the "advanced levels" of the world by 1970.<sup>51</sup>

The plan of catching-up with Western countries in the PRC became less vigorous after the middle of the 1970s. In 1975, Zhōu Ēnlái postponed the



target deadline of the establishment of an industrial system to 1980. The catching-up process was also modified into two stages: to build an independent and relatively comprehensive economic system by 1980; and to accomplish the "Four Modernizations" (modernization of agriculture, industry, national defence, and science and technology) by the year 2000.<sup>52</sup> The goals of modernization were further adjusted by Dèng Xiǎopíng in 1980: the per capita GNP of the PRC would be US\$ 1,000 by 2000,<sup>53</sup> and from 1985 it was expected that the PRC would take 30-50 years to reach the economic level of developed countries.<sup>54</sup> The Politburo proposed to quadruple the GNP of 1980 by 2000, but revised, in 1993, the target date to 1997, i.e. 3 years earlier.<sup>55</sup> However, in 1990 Lin Zixin questioned, in terms of the availability and quality of productive resources, the feasibility of the PRC catching up in such a short period. He speculated that the PRC indeed lagged by more than one century behind the US, instead of the official speculation of 10 to 30 years.<sup>56</sup> Despite Lin's criticism, the deputy director of the state Planning Commission, Gan Ziyu, in March 1993, expected that the annual economic growth of the 1990s would be higher than 11.5% – the average annual growth rate in the 1980s.<sup>57</sup>

The ruling elite of the ROC, like that of the PRC, held the idea of catching up with the economic level of Western developed countries. Jiǎng Jièshí argued that the success of economic modernization in the ROC depended on whether it could be modelled upon Britain's spirit of organization and utilization of scientific methods.<sup>58</sup> In order to rid his people of a sense of technological inferiority, Jiǎng urged them to learn from Western countries and try to supersede them in science and technology.<sup>59</sup> In 1976,

Premier Jiǎng Jīngguó exhorted his colleagues to utilize the natural resources of the ROC and expand its trade so that the ROC could "catch up with other countries economically" and attain the status of a "developed state."<sup>60</sup> In the same Legislative Yuan, Premier Sun Yun-suan predicated in 1980 that the ROC would enter the stage of advanced development and its industry would ultimately attain international standards in ten years' time.<sup>61</sup> In 1988, President Lǐ Dēnghuī predicated that by 2000, the GNP of the ROC would be US\$ 300 billion, and a per capita GNP of US\$ 13,400.<sup>62</sup> In October 1992, Lǐ attempted to convince his people that the ROC has "entered the ranks of the developed nations." Lǐ used two important projected figures: the ROC would have a GNP of US\$ 200 billion and a per capita GNP of more than US\$ 10,000 by the end of 1992.<sup>63</sup>

Therefore, in the last forty-four years, the ruling elites of both the PRC and ROC recognized the urgent need to close the economic gap with Western countries and to reach their targeted GNPs. These ruling elites of both Chinese countries identified science and technology as the economic means to increase productivity in the economic sector, thereby reducing the economic gap with Western countries. This will be examined in the next section.

### **5.3.3 Science and Technology as a Means to Improve the Economy in the PRC and ROC**

This section describes the social location of the use of science and technology in the PRC and ROC. This section argues that both Chinese countries identified science and technology as a means to increase the productivity of

their national economies, and re-interpreted the role of science and technology over a specified time period.

In the early days of the PRC, Chinese communist leaders recognized the importance of science and technology to the process of modernizing China. Since the promulgation of the "Common Programme" in 1949, the apparent authority of science has been widely upheld as one of the virtues identified in the constitution, and natural sciences were seen as servants of the construction of industry, agriculture and national defence.<sup>64</sup>

In 1956, Zhōu Ēnlái, recognizing the tremendous progress of science and technology in other parts of the world, indicated that the state should view science and technology as decisive factors in modernizing national defence, economy and culture.<sup>65</sup> The emergence of the Sino-Soviet split in the late 1950s compelled Máo Zédōng to become independent of the USSR in science and technology. During the Great Leap Forward Movement in the late 1950s, the CCP issued a call to "march toward the sciences" and promoted a slogan of a "big leap forward in science" for the purposes of improving the national economy.<sup>66</sup>

From 1978, the ruling elite of the PRC reinterpreted science and technology as important productive forces in socialist modernization. According to the Minister of the State Scientific and Technological Commission, Fāng Yì, the modernization of science and technology referred to a comprehensive and fundamental technical transformation of all fields of material production.<sup>67</sup> In 1981, Premier Zhào Zǐyáng further suggested that science and technology were "powerful" productive forces of and great

"stimuli" to economic development. Zhào believed that science and technology can serve people in "all aspects of human life."<sup>68</sup> In 1985, the Chinese communist leaders viewed science and technology personnel as "pioneers" in developing new productive forces, rather than targets for class struggle.<sup>69</sup> Science and technology were also perceived as "the profound source of the vitality" for the rejuvenation of China's economy, and as the base for production, construction, circulation and all other economic undertakings.<sup>70</sup> In 1988, Dèng Xiǎopíng supplemented Marx's idea by ranking science and technology as the "first" production forces in socialist modernization.<sup>71</sup>

In the early 1990s, the modernization of Chinese science and technology was emphasized as one of two priorities of economic construction.<sup>72</sup> The Ten-Year Plan (1991-2000) and the Eighth Five-Year Plan (1991-1995) spelt out the dialectic relationship between science and technology and the economy: science and technology must be geared to economic construction; and economic construction must orient towards science and technology.<sup>73</sup> In 1993, science and technology were still perceived by Premier Lǐ Péng as the first productive forces, and as an important key to both material and "spiritual" construction.<sup>74</sup>

However, the Chinese communist elite used the pre-1949 Republican slogan, "science and technology to rescue the nation," and extended it to the local level in the late 1980s and early 1990s. Towards the end of 1991, 20 provinces of the PRC had reportedly adopted the scheme of employing "science and technology to make a province prosperous," and more than 200 cities had exploited "science and technology to make a city prosperous."<sup>75</sup>

Like the CCP in the PRC, the CNP of the ROC socially reconstructed the role of science and technology in the economic modernization of Taiwan. Since 1949, the CNP has raised the importance of science and technology to the constitutional level. The promotion of scientific knowledge amongst citizens was established as one of the tasks of education and culture in the ROC constitution.<sup>76</sup> The ruling elite of the ROC frequently stressed the construction of a modern society which was marked by growth with equity. To achieve this goal, they identified two measures: reasonable distribution of land and the restriction of excessive accumulation of capital. However, the success of these two methods depended on the exploitation of the scientific spirit and methods.<sup>77</sup>

However, the development of science and technology in the ROC before the middle of the 1960s, as perceived by the ruling elite, was not well oriented towards economic construction. In 1956, Jiǎng Jièshí reproached his people. He argued that if they did not embrace a scientific spirit of research and development, the whole nation would lag behind in science and technology, and also be ousted gradually from the scientific world which was highly competitive.<sup>78</sup>

In the 1970s, the improvement of science and technology in the ROC was frequently mentioned together with national development. In 1975, Jiǎng Jīngguó, despite his recognition of the "essence of science" as "the pursuit of perfection and realism," suggested that the development of science should be geared towards national construction and popular benefits, particularly to national defence, communications, industry, agriculture, medicine and

education.<sup>79</sup>

In the 1980s, the economic functions of science and technology were more emphasized by the ruling elite of the ROC. The objectives of national science development were to include improving "national strength," the accumulation of greater wealth for the nation, and the elevation of the living standards of all citizens in the ROC.<sup>80</sup> In the middle of the 1980s, the establishment of a self-reliant defence system was stressed as another important objective of science development.<sup>81</sup> In 1988, President Lǐ Dēnghuī admitted that the government had deliberately used science and technology to upgrade the ROC into the ranks of developed countries.<sup>82</sup>

Therefore, in the last forty-four years, the ruling elites of the PRC and ROC regarded economic modernization as an important national goal in economic construction, and identified science and technology as a means to achieve it. However, as will be discussed in the next three sections, the PRC and ROC had a weak science and technology infrastructure inherited from their predecessor, and both countries needed to import foreign science and technology in order to develop their own.

#### **5.3.4 Domestic Levels of Science and Technology in the PRC and ROC**

In their founding periods, the PRC and ROC both inherited a weak infrastructure of science and technology from their predecessors. The common predecessor of the PRC and ROC, Imperial China, did not advocate practical education (as discussed in Chapter Two). Moreover, a series of wars (e.g. the Japanese invasion in the 1930s and civil wars in the 1940s) in mainland China

further damaged the weak infrastructure before the founding of the PRC. It was estimated that in 1949 the PRC had about 50,000 people (including clerical workers) engaged in work related to science and technology, but not more than 500 researchers. There were only about 30 research institutes.<sup>83</sup>

Taiwan, though having no legacy of civil war, also had a weak science and technology infrastructure. This was because Japan, as the overlord of Taiwan, had adopted the policy of "industrializing Japan and agriculturizing Taiwan" during the colonial period (1895-1945). Although colonial education in Taiwan advocated science and technology education, about 80% of college students were Japanese (see Appendix 5.1).<sup>84</sup> In 1944 (the year before Taiwan was returned to China), there were 2,174 students enrolled in Taihoko Imperial University and four special colleges in Taiwan. Of this total, 1,703 students took science and technology as their majors, but only 328 (19.3%) students were Taiwanese. Of these Taiwanese students, 202 took medicine as their majors, and 109 received technical education. Therefore, the PRC and ROC were weak in the infrastructure of science and technology in the founding period.

In the past four decades, the infrastructure of science and technology in the PRC and ROC, despite gradual improvement, was still below the standards of developed countries. The percentage of GNP allocated for science and technology research and development in the PRC was 0.1 in 1952, 0.5 in 1978, 1.2 in 1985, and 0.78 in 1992;<sup>85</sup> and in the ROC, 0.95 in 1984,<sup>86</sup> and 1.70 in 1991.<sup>87</sup> Moreover, the number of science and technology personnel per ten thousand population in the PRC was 2.9 in 1986 and 3.1 in 1988,<sup>88</sup> and in the

ROC 12.8 in 1985,<sup>89</sup> and 22.5 in 1991.<sup>90</sup> In 1992, the Běijīng authorities estimated that there were 500,000 scientists and engineers in the PRC.<sup>91</sup> In July 1993, the PRC admitted that the investment in science and technology was even lower than some developing countries.<sup>92</sup> In the early 1990s, the Taipei authorities expected to increase the investment in science and technology to more than 2% of GNP by 1995.<sup>93</sup> In developed countries, the percentage of GNP and number of personnel per ten thousand population employed in science and technology research and development were higher; they were respectively 2.6 (1984) and 65 (1988) in the US; 2.5 (1985) and 30 (1988) in (the former) West Germany; and 2.6 (1984) and 65 (1988) in Japan.<sup>94</sup>

Therefore, the PRC and ROC were faced with a dilemma: an urgent need for science and technology to improve productivity in the economic sector and insufficient domestic manpower trained in science and technology. The next section will centre on how these two countries solved this problem between 1949 and 1993.

### **5.3.5 Strategies for the Development of Science and Technology in the Economic Sectors of the PRC and ROC**

This thesis argues that the states of PRC and ROC exercised their control over the development of science and technology for economic modernization through a specialized state agency and through national plans. Both Chinese countries also imported foreign science and technology. However, the PRC and ROC differed from each other in their emphases on the development of science and technology, and strategies for the importation of foreign science and technology.



### 5.3.5.1 Establishment of a Special State Agency for Science and Technology

Both the PRC and ROC created a special state agency to formulate and regulate policy for science and technology.

In the PRC, the state controlled the domestic development of science and technology through the Science and Technology Commission (STC). It was inaugurated in 1958 by merging the former Science Planning Committee and the State Technological Committee. The STC was directly responsible to the State Council and accountable for the formulation of science policy, the recommendation of fund allocation to the State Council, and the administration and coordination of science and technology activities of the Chinese Academy of Sciences and research institutes under different ministries including the educational sector.<sup>95</sup>

As in the PRC, the state of the ROC exercised its control over the development of science and technology through the National Science Council (NSC). This was established to replace the former National Council for Long-Range Science Development in 1967. The NSC was accountable to the Executive Yuan for the following tasks: the formulation and promotion of policy about the development of science and technology; the promotion of science education; the recruitment and training of science and technology manpower; and the alignment of research work with the national economy.<sup>96</sup> The Committee for Guidance of Science Development under the National Security Council advised the President on the policies of science and technology. From 1979, an Advisory Team of Science and Technology comprising foreign experts was also established to help the Premier to assess

the policies of science and technology.<sup>97</sup>

These state agencies represented the highest authorities over the affairs of science and technology in the PRC and ROC. They also helped the respective states formulate national plans for science and technology.

### **5.3.5.2 Formulation of National Plans for Science and Technology**

These plans of the PRC and ROC, it is argued in this thesis, indicated their differences in emphases on the intended development of science and technology in both countries: the PRC consistently emphasized heavy and high technology; whereas the ROC attempted to move gradually from agriculture to heavy and high technology.

Since 1956, the PRC authorities have proposed six specific science and technology plans.<sup>98</sup> However, the First Five-Year Plan (1952-1957) and other national economic plans also described the policies of science and technology development in the periods concerned.

From these plans, this thesis notes that the intended development of science and technology in the PRC has been oriented towards capital-intensive industry since 1949 (see Appendix 5.2). First, some fields of science and technology (like electronics and computers, automation, laser technology and genetic engineering) which were growing in developed countries were included in most of the plans. Second, the plans were dominated by the needs of heavy industry. Although top priority was given to highly sophisticated industries such as atomic energy in the first economic and science and technology plans,<sup>99</sup> heavy industries including petroleum and mineral,

metallurgy, and heavy machinery were also emphasized. Agriculture and basic research were of the least importance. Light industry was totally neglected in the plans. The Second Five-Year Plan admitted that the orientation of the first national plans towards heavy industry was dominated by the USSR model and the desire to catch up with world standards.<sup>100</sup>

Agriculture became first in the agenda only from the Eight-Year Plan (1978-1985) onwards. However, the plans were still dominated by heavy industries. Basic research, like high energy physics, disappeared from the science and technology plans, but light industry became an important item from the Sixth Five-Year Plan (1981-1985). Military technology reappeared in the Eighth Five-Year Plan (1991-1995) after its disappearance in the Eight-Year Plan (1978-1985). The Eighth Five-Year Plan was revised in 1993 and priority was given to 4 core industries: transportation and energy-related machinery, electronics and telecommunications, automobiles, and construction.<sup>101</sup> All these suggested that the PRC authorities took heavy industry and high technology as foci of the development of science and technology for economic modernization. Agricultural and light industries were not emphasized in these national plans.

The bias towards heavy industry in the PRC was also reflected in the state investment in the economic sector. The ratio of investment on the infrastructure of heavy industry, light industry and agriculture was 36.1 : 6.4 : 7.1 in 1952-1957; 51.1 : 4.4 : 10.7 between 1966 and 1970;<sup>102</sup> and 60.7 : 16.3 : 5.6 between 1981 and 1985.<sup>103</sup>

In contrast to the PRC, the ROC, despite its development of science and

technology determined by economic trends, did not start with heavy-industry and had no detailed national plans for science and technology in the 1950s. Instead, the ROC government, as H. J. Duller noted, developed its economy with the strategy of "appropriate technology."<sup>104</sup> No plan concerning science and technology development was drafted by the ROC government in Taiwan until 1959. The first plan of science and technology, "A Guideline for the Long-Range Development of Science," was promulgated in 1959. The "Guideline" concerned the recruitment of scientists, but gave no specific direction or emphasis for science and technology development.<sup>105</sup> But this did not mean that the ROC had no direction for the development of science and technology in the economic sector. In the 1950s, the ROC economy was marked by the coexistence of agriculture and light industry. In 1956, Jiǎng Jièshí proposed a modernization programme with emphases on four dimensions: psychological, political, economic, and social.<sup>106</sup> The ruling elite of the ROC, adopting the Sūn's idea, promoted a slogan: "to foster industry with agriculture, and to develop agriculture with industry" in the 1950s.

The need for a national science and technology plan arose in the late 1960s when the ROC began industrializing. In 1967, the President of the National Science Council, Wú Dà'yóu, criticized the former Council of Long-Range Science Development for its emphasis on pure science, and pointed out that the development of science must be geared to overall planning for national construction including the development of national defence.<sup>107</sup> Since 1969, six major national science and technology plans have been devised, marking a shift from meeting the basic needs of the people to a technology-

intensive economy.<sup>108</sup> These initial science and technology programmes, according to the Taipei authorities, had two aims. First, the development of natural and applied sciences should be geared to the modernization of Taiwan, including the creation of a pharmaceutical industry and the promotion of electronics and sophisticated machinery industries. Second, the national research capability should be raised through the strengthening of the training and recruitment of scientific workers, active promotion of international science cooperation, the improvement of the collection and exchange of science and technology data, and the development and application of precision instruments.<sup>109</sup>

From the late 1970s, the ROC attempted to orient its economy towards high technology. In 1976, Premier Jiǎng Jīngguó indicated that the direction of science development was being monitored by the state with a stress on research in electronic science, material science, farm machinery, food science, and environmental science.<sup>110</sup> He expected that these emphases would help the ROC move smoothly from light industry into heavy and sophisticated industry – capital- and technology-intensive industry. In 1977, Shien-siu Shu, Chairman of the National Science Council, also pressed for the establishment of more technology-oriented industries which were to be marked by four characteristics: high technological mobility and competitive power; environmental sensitivity; marketing know-how; and innovation to meet market demand.<sup>111</sup>

In the early 1990s, eight types of technologies were singled out as core industries in the Six-Year Plan of National Construction (1991-1996). These

technologies are electro-optics, information, automation, materials, high-technology sensing and detection, biotechnology, resource exploitation, and energy.<sup>112</sup> Among them, technologies of information, automation and materials had already received greater financial and manpower support from the government between 1986 and 1990.<sup>113</sup> This indicated that the ROC as a newly industrialized country attempted to sustain its economic growth with the development of a high-level of science and technology.

Although the PRC and ROC had special state agencies and national plans to develop science and technology for economic modernization, these two Chinese countries adopted different strategies for changing the orientation of their economy from agriculture to capital- or high-technology intensiveness in the last forty-four years. It will be suggested in the next section that both Chinese countries also used different strategies to import foreign science and technology to help them make this economic change.

#### **5.3.5.3 Importation for Foreign Science and Technology**

This section identifies the countries from which the PRC and ROC imported foreign science and technology, and describes the importation strategies used by these two Chinese countries.

This thesis argues that the science and technology relations with other countries in PRC and ROC followed their international political and economic relations (which have been discussed in Chapter Three); and that the types of imported science and technology were those emphasized in the respective national plans of science and technology. In other words, the PRC changed

its supplier country from the USSR to Western countries in the 1970s, and consistently imported capital-intensive science and technology in the last forty-four years. The ROC consistently introduced science and technology from Western countries, but gradually changed the types of imported science and technology from agricultural to high technology.

The PRC and ROC had different sources of science and technology before the 1970s, but relied on the same group of supplier countries from the 1970s.

In the PRC, the importation of foreign science and technology can be divided into two major phases: before and after the end of the Cultural Revolution in 1976. The PRC imported science and technology from the USSR before 1960, and from Western countries via (the former) West Germany between 1960 and the middle of the 1970s. After 1978, the PRC directly imported Western science and technology. In 1990, the top five Western supplier countries for the PRC were the US, West Germany, Canada, Japan, Italy and the United Kingdom. In 1991, the former USSR suddenly became the largest supplier to the PRC.<sup>114</sup> However, in 1992, the top five suppliers to the PRC were Western countries and Japan.<sup>115</sup>

In the last four decades, the ROC had two major suppliers of science and technology, the US and Japan. The US and Japan were the two largest trade partners of the ROC between 1952 and 1991.<sup>116</sup> Up to 1985, the ROC made 64.5% of its technology-related agreements with Japan, and 22% with the US.<sup>117</sup> In 1986, a ROC Minister, Li Kwoh-Ting, proposed to bridge the trade deficit between the ROC and the US by buying more technology from the

US.<sup>118</sup> In contrast, the ROC's annual trade deficit with Japan was expected to grow by 25% to US\$ 16 billion in 1993. This huge gap was attributed to the ROC's heavy reliance on Japanese technology and components.<sup>119</sup>

However, the PRC and ROC differed in their types of imported science and technology over specific periods.

Owing to the weak domestic industrial infrastructure, alienation from the West, and the adoption of the Soviet planning model based upon the priority of heavy industry, the PRC imported heavy industrial plants, know-how, blueprints, and experts from the former USSR before 1960. Between 1960 and 1976, the PRC imported indirectly Western science and technology to sustain the heavy-industry oriented economy. Between 1979 and 1981, the types of foreign science and technology covered five major areas: advanced equipment or component parts; new and fine quality materials; new principles, data and directions of science and technology; new technological processes and scientific operational procedures; and managerial methods in the implementation of science and technology policies.<sup>120</sup> The Minister of the Technological Import and Export Department, Wu Fengzhou, reported in 1985 that imported technologies were to include metallurgy, machinery, electronics, petrochemistry, textile and building materials.<sup>121</sup> In 1990, electronic technology for machines shared 47.33% in value of the imported technologies; whereas light industry only shared 11.85%. Communication technology (1.26%) was another significant item in the list of imports.<sup>122</sup> In 1992, the types of imported science and technology did not change significantly as compared with those in the 1980s.<sup>123</sup> Technologies for capital-intensive



industry were a frequent item in the PRC's list of imported goods.

In contrast, the types of science and technology imported by the ROC gradually shifted from agricultural, to light, and to heavy and knowledge-intensive industries. In the 1950s, foreign science and technology were imported mainly for the promotion of agriculture and light industry, and included equipment for the mechanization of agriculture, food processing, textiles, and light industry. These policies were oriented towards import-substitution. In the 1960s, economic development was characterized by the needs of technologies for electronics, export-led light industry, and the processing of plastics, plywood and artificial boards. In the 1970s, the emphases on importing science and technology switched to labour-intensive heavy industry. In this period, the government's projects included the establishment of a steel mill, petrochemical installations, a nuclear power plant, and a shipyard.<sup>124</sup>

In the 1980s, the ROC industry was marked by capital- and technology-intensive industry. This was caused by three major factors: high domestic demand; rising service sector; and the challenge of international market competition. Besides, the labour wage in the ROC was higher than in other Asian countries, like the PRC and Thailand. In response to these domestic and international pressures, the ROC focused on 8 strategic areas of technologies: information, energy, materials, automation, electro-optics, genetic engineering, hepatitis control, and food.<sup>125</sup> In the early 1990s, the Taipei authorities highlighted 8 similar areas of technology (mentioned earlier in this chapter).<sup>126</sup>

In order to attract foreign capital and import Western science and technology, the PRC and ROC set up special economic zones. In 1966, the ROC established the Kaohsiung Export Processing Zone (EPZ) to attract foreign investment of capital and technology by the provision of low-wage labour and low-cost land and power.<sup>127</sup> The Kaohsiung EPZ also offered employment opportunity for 25,000 people.<sup>128</sup> Two other EPZs were developed at Nantze and Taichung in 1969. These three EPZs provided jobs for 77,000 people in 1986. Though there was no restriction on the types of manufacture in EPZs, products had to be mainly for export.<sup>129</sup>

In the late 1980s, the slow urban growth<sup>130</sup> and the rising cost of labour forced the economy to develop technology, particularly high technology, and service industries. Modelling upon the EPZ and aiming to become an American Silicon Valley in the ROC, Hsinchu Science-Based Industrial Park was set apart exclusively for the introduction of foreign high technology in the ROC in December 1980. By March 1986, high technology had been transferred from the Western world through 60 companies for production: 6 were local, 19 US, 35 overseas Chinese. There were 8,530 people employed by these companies. Amongst them, 5% have advanced degrees, and 37% have bachelor degrees or the equivalent. The total export value of the high-technology products was US\$ 450 million in 1986.<sup>131</sup>

In 1980, the PRC, like the ROC, began to establish special economic zones (SEZs) as a "window" to import foreign science and technology, management and administration, and knowledge. Up to 1993, there were five SEZs (in Shenzhen, Zhuhai, Shantou, Xiamen, and Hainan) which

implemented state plans but with authority devolved to provincial governments. These SEZs emphasized the incorporation of foreign industrial technology. Between 1980 and 1985, these SZE imported 1,665 different items of technology, and utilized foreign capital of US\$ 1.17 billion.<sup>132</sup> In 1984, the PRC guided by the experience of SEZs began to establish Economic and Technological Development Zones (ETDZs) along the coast line. These ETDZs, differing from SEZs, were administered directly by city governments and were used to import high technology.<sup>133</sup> For example, these technologies in one ETDZ included the integration of mechanics and electronics, electronic information, new materials, genetic engineering, and computer software.<sup>134</sup> Up to July 1993, there were 30 ETDZs.<sup>135</sup> Many multinational corporations with home base in the US, Canada, West Germany, Japan and Taiwan established their firms in these SEZs and ETDZs of the PRC.

The policy of importing foreign science and technology into the PRC and ROC also had different results in enhancing the domestic capabilities of science and technology. Up to 1990, the PRC has spent about US\$ 30 billion on importing complete sets of equipment and whole plants.<sup>136</sup> The imported science and technology, as noted by many domestic and foreign scholars, did not produce the anticipated results. The reasons included lack of planning and coordination; massive duplication in importing technologies; a low absorption rate; shortage of trained workers to operate the imported production and assembly lines; underuse and misuse of foreign equipment; and low supporting service from foreign corporations.<sup>137</sup> The State Science and Technology Commission even admitted that in some cities, 80% of research

work were not related to technological knowhow. Between 1986 and 1990, less than 10% of 2,000 state projects had developed capacities to absorb imported science and technology.<sup>138</sup>

In contrast, the ROC, as observed by Denis F. Simon, had developed a high absorption capacity, despite some difficulties like the importation of obsolete technologies and miscommunication between local and foreign corporations. From the early 1970s, the ROC used imported technology for production and innovation, and re-exported the products to other countries. Up to 1985, the ROC reinvested more than US\$ 117 million in the US.<sup>139</sup>

To sum up, the urgency, in the modernization policies of the PRC and ROC, was based on the need to reduce the economic gap with Western countries. Both Chinese governments followed the path of Sūn Yīxiān, and identified science and technology as a means to improve the national economy. Nevertheless, they lacked qualified manpower in science and technology. Therefore, they centralized the development of science and technology through the establishment of state commissions and the formulation of national plans. Both Chinese countries also imported and accommodated foreign science and technology from countries which had international political and economic relations with the PRC or ROC. In other words, both Chinese countries have accepted the economic functions and values of Western science and technology in improving their economies.

However, the transfer of science and technology from foreign countries to the PRC or ROC was an inter-cultural activity. Science and technology have their own value systems, and represent the socio-economic and cultural

relations and values in the society in which scientific and technological activities are conducted. Both the PRC and ROC have strong cultural traditions and their own central value systems. These systems, as discussed in Chapter Three, represented the respective Chinese ruling elites' perceptions about socio-political, and economic relations and values. The ruling elites of the PRC and ROC re-interpreted from their own frameworks the socio-political relations and values associated with the imported science and technology. This will be discussed in the next section.

#### **5.4 SCIENCE AND TECHNOLOGY, SOCIETY, AND CULTURE IN THE PRC AND ROC**

This section describes the relations of science and technology with society and culture in the PRC and ROC. This thesis argues that despite the incorporation of foreign science and technology for economic modernization, the ruling elites of the PRC and ROC injected their socio-political values into imported science and technology. In the PRC, Western science and technology which had been formerly rejected was accepted on different grounds of ideological justification after 1978. The ROC accepted Western science and technology, but linked them with the mission of recovering mainland China before the late 1980s, and afterwards with the struggle for international political identity.

This section begins with the discussion of the relations of science and technology with society and culture in the PRC. The discussion is followed by an examination of these relations in the ROC.

#### **5.4.1 Socio-political Nature of Science and Technology in the PRC**

This thesis argues that the ruling elite of the PRC re-interpreted the socio-political relations and values of Western science and technology over specific time periods.

In the PRC, modernization did not mean complete Westernization. Wholesale Europeanization and Americanization had already been rejected by Máo Zédōng since 1940.<sup>140</sup> Rather, the PRC has insisted that modernization must take a "socialist road" within the socialist framework, i.e. under the dictatorship of the working class and upon the alliance of workers and peasants.<sup>141</sup> Chinese socialist modernization was also the Party leaders' attempt to show the superiority of socialism over capitalism. Liú Shǎoqí remarked in 1956 that the superiority of socialism in achieving economic achievements should be demonstrated in quantity, quality and speed.<sup>142</sup> His remark may be used to give an ideological explanation for the disastrous Great Leap Forward Movement between 1958-1959 and many subsequent ambitious plans of national construction.

In the PRC, science and technology were never neutral in the last forty-four years. Rather, they were inseparable from domestic politics particularly when it took command during the founding period and Cultural Revolution.

In the early 1950s, science was incorporated by Máo in economic modernization as a means to liberate the PRC from nature and traditional Chinese culture.<sup>143</sup> Science and technology imported from the former USSR were accommodated on a national scale. In contrast, the ruling elite of the PRC attempted to eliminate the influence of capitalism on Western science and

technology which were imported into China before 1949.<sup>144</sup> As academic disciplines, science and technology could not be an "objective" for scientists; they could not do research as a purely theoretical pursuit without considering the needs of the people and the state.<sup>145</sup> Moreover, the ruling elite of the PRC labelled scientists and engineers as capitalist because most of them were trained in Western countries before 1949. Many campaigns of class struggle were launched against Western-trained scientists and technologists.<sup>146</sup> In 1958, the Chairman of the Scientific Planning Committee, Niè Róngzhēn, even accused these technical cadres of possessing a bourgeois mindset of individualism, and standards of scholarship.<sup>147</sup> The PRC authorities demanded the conversion of intellectuals and professionals who were labelled as the "products of the bourgeoisie" into the socialist road through self-criticism and confession in intensive campaigns of thought reforms.<sup>148</sup>

The climax of the rejection of Western science and technology took place during the Cultural Revolution (1966-1976). Science and technology activities were further restricted in the PRC. Science and technology were denied as part of productive forces, and the drive to realize the "Four Modernizations" was denounced as "restoration of capitalism."<sup>149</sup> Basic research was accused of being "divorced from the masses, production and reality." Learning from foreign countries and international academic exchange of science and technology were rejected as "worshipping things foreign and trailing behind foreigners." Professional societies, meetings, and journals were banned. The Science and Technology Committee was abolished, and its administration was taken over by the Revolutionary Committee of scientists, officials of the Party

and state, and workers.<sup>150</sup> This series of actions indicated that Western science and technology were rejected on ideological grounds: they were perceived by the Chinese socialist leaders to be associated with capitalism. These actions, however, further weakened the science and technology capabilities of the PRC, and widened its science and technology gap with Western countries which advanced their science and technology base tremendously in the same period.

However, Western science and technology was accepted on another ideological ground after the late 1970s. In 1978, science and technology were re-interpreted by Dèng Xiǎopíng at the National Science Conference.<sup>151</sup> First of all, Dèng attempted to eliminate the ideological blockade of the PRC's access to the science and technology of capitalist countries by treating science and technology as "part of the wealth created in common" by all humankind. Then Dèng argued that science and technology were important productive forces because they "liberated" and improved production techniques, and because they determined the direction of economic development in the technological world.

Moreover, Dèng attempted to demolish the class struggle between intellectuals and the working class by means of incorporating intellectuals into the working class. He argued that most of the intellectuals including scientists and technologists were "already part of the working class" because they were trained by the working class in the PRC. Both mental and manual labourers in the PRC, according to Dèng, were engaged in "social division of labour." However, a survey done by the Research Division of the Municipal Party at



Beijing in December 1987 revealed that 46.3% of 1,630 respondent intellectuals did not regard themselves as part of the working class.<sup>152</sup> Despite this perception of intellectuals, Dèng's assertions were, as Tony Saich noted, almost equivalent to pronouncements on the withdrawal of science and technology from the arenas of political struggle, and to a removal of the justification for persecution of intellectuals.<sup>153</sup> The present ruling elite of the PRC no longer emphasizes the relations of Western science and technology with capitalism at the ideological level.

However, the re-interpretation of science and technology offered by Dèng to justify the importation of Western science and technology created a new problem: if science and technology could be detached from capitalist connotation, they could be dissociated from socialist connotations as well.

This thesis notes that up to 1993, the ruling elite of the PRC insisted on the development of domestic science and technology within the framework of Chinese socialism. In the late 1980s, this elite gave science and technology four major socio-political tasks: to provide modern technical means for cultural advances; to give impetus to and promote the development of Marxism and other social sciences; to remould social concepts; to popularize the scientific spirit and methods; and to fight ignorance and superstitions particularly among over the 200 million illiterate people and those in rural areas.<sup>154</sup>

Moreover, although the PRC authorities conceded that science and technology were no longer subordinate to socialism, they insisted that science and technology and socialism were engaged in a dialectical relation. The former President of the Chinese Academy of Sciences (CAS), Guō Mòruò,

cautiously described in 1978 the relation between science and technology and socialism: only socialism can liberate science and technology, and the construction of socialism depends on the basis of science and technology.<sup>155</sup> In 1992, the present President of the CAS, Zhōu Guāngshào, explained further that economic needs stimulate the development of science and technology which in turn accelerate economic progress; and that the strong "symbiotic" interactions of science and technology with politics, culture, ideology and even the lifestyle of people will be the prime mover of the progress of society and human civilization.<sup>156</sup>

In other words, the ruling elite of the PRC, despite changing the ideological ground for the acceptance of Western science and technology for economic modernization, persisted in relating science and technology with the central value system. In contrast, the ROC consistently welcomed Western science and technology. However, the imported science and technology were also embedded with the domestic socio-political values of the ROC.

#### **5.4.2 Socio-political Nature of Science and Technology in the ROC**

This thesis argues that the ruling elite of the ROC linked science and technology with the socio-political and cultural dimensions of their central value system.

The ruling elite of the ROC attempted to relate Western science and technology with traditional Chinese cultures. Jiǎng Jièshí perceived the economic modernization of Western countries as a product of the advancement of scientific knowledge and the popularization of scientific methods.<sup>157</sup> Jiǎng

also argued that China had a long tradition of science. Jiǎng identified science as knowledge gained through systematic analysis.<sup>158</sup> Drawing widely from Chinese classical texts like the *Great Learning* and *Mencius*, Jiǎng further related the scientific spirit with pragmatism, the pursuit of excellence, and persistence.<sup>159</sup>

Before the late 1980s, the ruling elite of the ROC injected science and technology with their socio-political values: anticommunist connotations and the recovery of mainland China. Jiǎng Jièshí argued that the survival of the ROC depended on the strength of the national defence which in turn rested upon the foundation of science and technology.<sup>160</sup> He explicitly spelt out that the ROC needed "revolutionary and anti-communist science," and this science was based on the Principle of Livelihood.<sup>161</sup>

The establishment of Taiwan as a model province with the help of science and technology was also seen by Jiǎng as a "blueprint for building a new China" in accordance with the Three People's Principles after the recovery of mainland China.<sup>162</sup> Early in the 1950s, Jiǎng Yànshì argued that the development of science and technology and the priorities and needs of society were inter-related in Taiwan. He expected graduates of science and technology in the ROC to reform farms and factories, to use science and technology to produce more wealth, and therefore to strengthen the ROC as a bastion to recover mainland China.<sup>163</sup> At the Ninth Congress of the CNP held in November 1963, Jiǎng announced his comprehensive modernization programme for constructing the ROC as a new China. The immediate goal of the programme was to establish Taiwan as a model province and as a base for

destroying Chinese Communists. To achieve this goal, the politics, economics, society, people's life, education and national defence of the ROC needed to be "modernized."<sup>164</sup> The "modernization" of these dimensions, according to Jiǎng, was their integration with scientific knowledge and methods.<sup>165</sup> He had quoted Japan as a successful example of the application of Western scientific knowledge and methods, and perceived them as an effective way to revolutionize and construct China.<sup>166</sup>

The theme of using science and technology to recover mainland China was carried through in the 1970s and 1980s. In 1974, Jiǎng Jīngguó equated the reconstruction of Taiwan with the recovery of mainland China.<sup>167</sup> In 1981, he summed up why the CNP developed Taiwan: to strengthen the courage and raise the hopes of the people in the PRC; to provide a successful way to modernization for them; and to lay a firmer foundation for the recovery of mainland China.<sup>168</sup> The promotion of science and technology programmes in the 1980s was regarded by Jiǎng Jīngguó as one of the foundations for the recovery of mainland China.

After the late 1980s, science and technology were linked by the political leaders of the ROC with the struggle for its international political identity. The ROC, as discussed in Chapter Three, made use of its economic influence to maintain non-diplomatic relations with other countries. Science and technology were a key factor contributing to the sustenance of economic growth in the ROC. In an interview in 1988, President Lǐ Dēnghuī suggested the introduction of the "latest" high technology from abroad to sustain economic and technological development.<sup>169</sup> In another interview, he also

expressed the view that in addition to trade, investment and cultural exchange, the "technological channel" was one of the means to promote "substantive relations" – flexible non-diplomatic relations – with other countries. But the theme of developing Taiwan as a model for a "future unified China" remained in his speech.<sup>170</sup> In 1990, Li further suggested that the ROC's trade and exchange of science and technology with the PRC be used to build up the basis of mutual trust and prosperity between these two countries.<sup>171</sup>

To conclude, science and technology as human activities are not socio-politically neutral in the PRC and ROC. The choice of countries from which the PRC and ROC importing science and technology had already been a socio-political decision. In the PRC, imported science and technology from countries which upheld conflicting value systems needed justification; whereas in the ROC, science and technology was entrusted with an ideological mission.

## 5.5 SUMMARY AND CONCLUSION

This chapter has described the relations of science and technology with the economy, society, and culture in the PRC and ROC. It has been argued in this chapter that both the PRC and ROC imported foreign science and technology for economic purposes, and at the same time framed them with and injected into them the socio-political values prescribed by the respective Chinese ruling elites.

Both the PRC and ROC accommodated the economic functions and values of imported science and technology. The PRC and ROC established state agencies to centralize the development of domestic science and

technology and direct the development with national plans. Both Chinese countries also established specialized zones to incorporate foreign capital, and science and technology. The external relations of science and technology in the PRC and ROC followed their international political and economic relations. In terms of the development of domestic science and technology and the importation of foreign ones, the PRC stressed consistently capital-intensive industries; whereas the ROC gradually changed its emphases from agricultural to technology-intensive industries.

However, both the PRC and ROC re-interpreted the socio-political relations and values of science and technology according to their respective Chinese central value systems. In the PRC, Western science and technology were first rejected but later accepted with different ideological justifications. In the ROC, imported science and technology was linked with the recovery of mainland China and the struggles for international political identity.

The next chapter will discuss the economic tasks of higher education in the PRC and ROC in the production of technical cadres – scientists and technologists.

### Endnotes for Chapter Five

1. See Edwin Layton, "Mirror-Image Twins: The Communities of Science and Technology in 19th-Century America," *Technology and Culture*, Vol.12, No.4 (1971), pp.562-580; A. R. Hall, "Science, Technology, and Utopia in the Seventeenth Century," *Science and Society*, pp.33-53; and Michael Adas, *Machines as the Measure of Man: Science, Technology, and Ideologies of Western Dominance* (Ithaca and London: Cornell University Press, 1989).
2. Some scholars proposed that science and technology represent two separate domains, and assumed that there is a linear relationship between them. Scientists and workers of research and development (R&D) engage in the division of labour: scientists produce knowledge for R&D workers to generate new technologies. The theorists of the linear model suggested that technology is science-based, and argued for the precedence of science over technology. See Robin Clarke, *Science and Technology in World Development* (Oxford and New York: Oxford University Press and UNESCO, 1985), pp.33-34.
3. There were scholars who believed that science and technology are mutually interpenetrated, and the demarcation line between science and technology is not obvious. Technologies involved scientific principles, while the search for new scientific principles relies on existing technologies. The demand for new technologies creates opportunity, in terms of the allocation of funding and human resources, for further research on new scientific knowledge. Moreover, the roles of scientists and technologists are ambiguous. Many scientists utilize their research results to generate new technologies, whereas technologists probe supporting scientific principles. Industrial activities of research and development are both the cause and consequence of the intimate relation between science and technology. Thus, technology is "science-related," rather than science-based. Science and technology are being treated as an "indissoluble whole." See C. Freeman, *The Economies of Industrial Innovation* (Harmondsworth: Penguin, 1974), pp.29-35; M. R. Bhagavan, *Technological Advance in the Third World: Strategies and Prospects* (London and New Jersey: Zed Books Ltd., 1990), p.21; and Robin Clarke, *Science and Technology in World Development* (Oxford and New York: Oxford University Press and UNESCO, 1985), pp.38-39.
4. Christian N. Madu, *Strategic Planning in Technology Transfer to Less Developed Countries* (New York: Quorum books, 1992), p.xv.
5. Ralph Landau, and Nathan Rosenberg, "Editors' Overview," in the book edited by them, *The Positive Sun Strategy: Harnessing Technology for Economic Growth* (Washington, D. C.: National Academy Press, 1986),

pp.1-16.

6. United Nations, *Science and Technology for Development: World of Opportunity* (New York: United Nations, 1963), Vol.1, p.185. See also Item 9 of the "Final Report of the UNESCO Symposium on the Scientific and Technology Revolution and the Social Sciences, Prague, 6-10 September 1976" in R. S. Cohen et al. (eds.), *The Social Implications of the Scientific and Technological Revolution: A UNESCO Symposium* (Paris: Educational, Scientific and Cultural Organization, United Nations, 1981), pp.365-374.
7. This is an "empirical law" proposed by Jolla Price of the Yale University. See Abdus Salam, *Notes on Science, Technology and Science Education in the Development of the South* (a monograph prepared for the 5th and 6th Meetings of the South Commission of the Third World Academy of Sciences, 27-30 May 1989, Maputo, Mozambique and 11-14 November 1989, New Delhi), p.38.
8. Organization of Economic Cooperation and Development, *New Technologies in the 1990s: A Socio-economic Strategy (Report of a Group of Experts on the Social Aspects of New Technologies)* (Paris: OECD, 1988), p.12.
9. Jan Annerstedt, *A Study of World Research and Development Efforts* (Paris: OECD, 1979), p.6.
10. Special issue on "Science, Technology and Development: North-South Co-operation," *Science, Technology & Development*, Vol. 9, No. 1-2 (April-August, 1991) (London: Frank Cass, 1991).
11. Keith Pavitt, "Technology Transfer among the Industrially Advanced Countries: An Overview," in Nathan Rosenberg, and Claudio Frischtak (eds.), *International Technology Transfer: Concepts, Measures, and Comparisons* (New York: Praeger, 1985), pp.3-23.
12. Jack Baranson and Robin Roark, "Trends in North-South Transfer of High Technology," in Nathan Rosenberg, and Claudio Frischtak (eds.), *International Technology Transfer: Concepts, Measures, and Comparisons* (New York: Praeger, 1985), pp.24-42; and Christian N. Madu, *Strategic Planning in Technology Transfer to Less Developed Countries* (New York: Quorum books, 1992), p.2.
13. Assad Omer, "Channels and Mechanisms for Transfer of Technology," in United Nations, *Technology Policies for Development and Selected Issues for Action: Proceedings of a Seminar organised by Islamic Development Bank and UNCTAD (10-17 November, 1986)* (New York: United Nations, 1988), pp.30-36; and Christian N. Madu, *Strategic Planning in Technology Transfer to Less Developed Countries* (New York: Quorum books, 1992), pp.3-4.



14. United Nations, *Science and Technology for Development: World of Opportunity* (New York: United Nations, 1963), Vol.1, p.185.
15. Francisco R. Sagasti, *Technology, Planning, and Self-Reliant Development: A Latin American View* (New York: Praeger, 1979).
16. Amilcur Herrera, "A New Role for Technology," *Mazingira*, No.8 (1979), pp.35-40; and Marja-Liisa Swantz, "Research, Participation and Local Needs – Guidelines for the Basic needs Working Group," and Ponna Wignaraga, "Basic Needs and Rural Development," respectively in Jeremy Gould (ed.), *Needs Participation and Local Development: A Theoretical Study* (Helsinki: Finnish National Commission for UNESCO, 1981), pp.1-10 and 11-28. See also John M. Logsdon and Mary M. Allen, *Science and Technology in United Nations Conferences: A Report for the United Nations for Science and Technology* (Washington, D. C.: George Washington University, 1978), pp.7-8.
17. International Labour Office, *Basic Needs Objectives and Policies in Long-term Development Planning* (Geneva: ILO, 1978).
18. Ernst F. Schumacher has put forward four criteria for intermediate technology: the industry is established in the areas in which the local people are presently living; the industry is financially affordable; the demands for high skills are minimized by the employment of relatively simple production methods; and the production should be mainly from local materials and mainly for local use. See Ernst F. Schumacher, *Small is Beautiful* (London: Abacus, 1976), pp.145-146.
19. Marja-Liisa Swantz, "Research, Participation and Local Needs – Guidelines for the Basic needs Working Group," in Jeremy Gould (ed.), *Needs Participation and Local Development: A Theoretical Study* (Helsinki: Finnish National Commission for UNESCO, 1981), p.8.
20. These cities included those in Honduras, Bangladesh, Ghana, South India, Gambia, Papua new Guinea, and Nepal. See Sosthenes Buatis, *Technology Transfer: Nine Case Studies* (London: Intermediate Technology Publications, 1988).
21. *Asian Science and Technology Congress (1987: Kuala Lumpur)* (Stockholm: International Foundation for Science, 1988).
22. Karl Popper, *The Logic of Scientific Discovery* (New York: Wiley, 1961).
23. Thomas S. Kuhn's principles are: "the consequences deducible from a theory should be in demonstrated agreement with the results of existing experiments and observations;" the theory should be internally coherent and "also with other currently accepted theories applicable to related aspects of nature;" the "theory's consequences should extend far beyond the particular observations, laws, or subtheories it was initially to

explain;" the theory can formulate the pattern of "phenomena that in its absence would be individually isolated and, as a set, confused;" and the "theory should be fruitful of new research findings." See Thomas S. Kuhn, *The Essential Tension* (Chicago: University of Chicago, 1977), pp.321-322.

24. This thesis rejects those ideas that assert science and technology are free from external social and cultural values. Some scholars have suggested that science and technology and values are two separate spheres, and believe that different people from different societies or cultures will give the same account of the same observational phenomenon. These scholars suggest that science as a body of objective knowledge is neutral and the results of scientific research have no bearing on the value system of a society. Albert Einstein asserted that science is descriptive, not normative. Science as descriptive has "no moral or ethical quality." G. Galileo even argued that scientific results and conclusions are independent of human judgement. Moreover, R. A. Buchanan maintained that technology is "amoral," does not incorporate or imply any socio-political values, and is a neutral instrument which can be used for good or ill. Salah Kansu argued that natural science is "neutral and non-ideological," but technology is not; and that science and technology can be bridged only by social sciences.

However, these scholars tended to internationalize or universalize science and technology. Scientists and technologists seemed to use the separation of science and technology from their socio-cultural settings to rationalize the protection of their work from external intervention and control. Moreover, these scholars assumed that science and technology can be conducted, formulated and interpreted without human intervention, and the progress of science and technology is self-driven. However, people are agents in the formulation of science and technology, and the development of science and technology is promoted by individuals or institutions which are shaped by their society or culture.

See G. Galileo, *Dialogue on the Great World System*, Salisbury translation, edited by G. De Santillana (Chicago: University of Chicago Press, 1953); R. A. Buchanan, *Technology and Social Progress* (Oxford: Pergamon Press, 1965), p.163; Ernest Chain, "Social Responsibility and the Scientist," *New Scientist*, 22 October, 1970, pp.166-170; Amitai Etzioni, and Richard Remp, *Technology Shortcuts to Social Change* (New York: Russell Sage Foundation, 1973), pp.220-221; and Salah Kansu, "Social Sciences as a Channel Between Science and Technology," in R. S. Cohen et al. (eds.), *The Social Implications of the Scientific and Technological Revolution: A UNESCO Symposium* (Paris: Educational, Scientific and Cultural Organization, United Nations, 1981), pp.321-325.

25. At the level of individuals, science and technology expressed in the form of knowledge and skills represent the perceptions of the natural world and the application of this knowledge and body of skills by scientists and technologists. They as social beings are indispensable agents in the exploration, description, interpretation and application of science and technology. Max Weber regarded science as a vocation which commits one to observational and empirical analysis. However, science, to Weber, is not neutral. Science presupposes the validity of the rules of logic and method. Scientific progress is an important fraction of the process of "intellectualization" -- the disenchantment of the natural world by technical means and calculation. The value of scientific work ultimately relies on the people's interpretation of life. Weber concluded that science as a vocation organized in special disciplines is in the service of self-clarification and knowledge of intellectual facts. Steven Yearley even argued that science is a social construction; science, in spite of having to do with the natural world, depends on human judgement and human conventions, and is indistinguishable from other cultural factors.

See Max Weber, "Science as a Vocation," *From Max Weber: Essays in Sociology*, edited by H. H. Gerth and C. Wright Mills and with a new preface by Bryan S. Turner (London: Routledge, new ed., 1991), pp.129-156; and Steven Yearley, *Science, Technology & Social Change* (London: Unwin Hyman, 1988), p.42.

26. Charles Boyle, Peter Wheale, and Brian Surgess, *People, Science and Technology: A Guide to Advanced Industrial Society* (Brighton, Sussex: Wheatsheaf Books, 1984), p.6.
27. Jacques Ellul argued that the "preceding technical situation alone is determinative of human progress," and that "technological progress today is no longer conditioned by anything other than its own calculus of efficiency." George McRobie also argued that technology has its own culture and "determines the ownership structure of industry." See Jacques Ellul, *The Technological Society*, translated by John Wilkinson (New York: Vintage Books, 1964), Chapter 2; and George McRobie, *Small is Possible* (London: Jonathan Cape, 1981), p.192.
28. Mitra Das, and Shirley Kolack, *Technology, Values and Society: Social Forces in Technology Change* (New York: Peter Lang Publishing, Inc., 1990), pp.149-151.
29. George M. Foster, *Traditional Cultures: and the Impacts of Technological Change* (New York: Harper & Row, 1962), pp.2-3.
30. Stanley A. Hetzler, *Technological Growth and Social Change: Achieving Modernization* (London: Routledge & Kegan Paul, 1969), p.5-17.

31. Greater specialization, as suggested by Das and Kolack, means more stress on "individualism." Science and technology become means for people to pursue individual prosperity, interests and goals. See Mitra Das, and Shirley Kolack, *Technology, Values and Society: Social Forces in Technology Change* (New York: Peter Lang Publishing, Inc., 1990), pp.149-151.
32. Donald MacKenzie, and Judy Wajcman (eds.), "Introductory Essay," *The Social Shaping of Technology* (Buckingham: Open University Press, 1985), pp.15-24.
33. Arnold Pacey perceived technological innovation as an outcome of a "cycle of mutual adjustments between social, cultural and technical factors." In particular, social values are reflected in the interests of researchers and in the public acceptance of certain kinds of research conducted in given society. See Theodore J. Gordon, "The Feedback Between Technology and Values," in Kurt Baier, and Nicholas Rescher (eds.), *Values and the Future* (New York: Free Press, 1969), pp.149-192; and Arnold Pacey, *The Culture of Technology* (Oxford: Basil Blackwell, 1983), p.25.
34. Warner M. Corden, *Trade Policy and Economic Welfare* (Oxford: Clarendon, 1974), pp.327-329; and Harry G. Johnson, *Technology and Economic Interdependence* (London: MacMillan, 1975), pp.7-8.
35. Francisco R. Sagasti, *Technology, Planning, and Self-Reliant Development: A Latin American View* (New York: Praeger, 1979).
36. Ward Morehouse has suggested that technology as "an instrument of global domination" is utilized by industrialized countries to create and maintain unequal economic relations with developing countries within the international economic and political systems. See Ward Morehouse, "Technological Autonomy and Disassociation in the International System: An Alternative Economic and Political Strategy for National Development," in Volker Rittberger (ed.), *Science and Technology in a Changing International Order: The United Nations Conference on Science and Technology for Development* (Boulder, Colorado: Westview, 1982), p.53.
37. M. R. Bhagavan, *Technological Advance in the Third World: Strategies and Prospects* (London and New Jersey: Zed Books Ltd., 1990), p.xi.
38. Anuwar Ali, "The Transfer of Technology and its Impact on the Development Process in Malaysia," in Michael J. Campbell (ed.), *Technology Transfer and Social Transformation* (Kuala Lumpur: Association of Development Research and Training Institutes of Asia and the Pacific, 1984), pp.161-181.
39. Ward Morehouse, op. cit., p.54.

40. Donald MacKenzie, and Judy Wajcman, "Introductory Essay," in the book edited by them, *The Social Shaping of Technology* (Buckingham: Open University Press, 1985), pp.4-8.
41. David J. Jeremy, "Introduction: Some of the Larger Issues Posed by Technological Transfer," in the book edited by him, *International Technological Transfer: Financing and Institution Building* (Mt. Airy, Maryland: Lomond Publications, 1981), p.2.
42. Michael J. Campbell, "Social Tensions within Developing Bureaucracies: The Technocrat and the Generalist Manager," in the book edited by him, *Technology Transfer and Social Transformation* (Kuala Lumpur: Association of Development Research and Training Institutes of Asia and the Pacific, 1984), pp.21-42.
43. Yixiān Sūn, *Sānmín Zhǔyì* (The Three People's Principles) (Taipei: Cheng Chung, Revised ed., 1978), pp.198-267.
44. The techniques involved the mechanization of farming tools, the use of chemical fertilizers, improvement of seeds and crops, pest controls, the preservation of food, the construction of an infrastructure for transportation, and the prevention of natural disasters. See Yixiān Sūn, *Sānmín Zhǔyì* (Three People's Principles) (Taipei: Cheng Chung, Revised ed., 1978), pp.231-250.
45. Yixiān Sūn, *Fundamentals of National Reconstruction (with Chinese Text)* (Taipei: Sino-American Publishing Co., 1953).
46. Yixiān Sūn, "Dà Yàzhōu Zhǔyì" (The Principle of Greater Asia), *Guófù Quánjī* (The Complete Works of Sūn Yixiān) (Taipei: Party History Committee of the Central Committee of the Nationalist Party, Rev. ed., 1973), Vol. 2, p.769.
47. Sūn Yixiān, *Guó Fù Quán Jí* (A Complete Collection of the Thoughts of National Father Sūn Yixiān) (Taipei: Committee for the Commemoration of Hundredth Birthday of National Father, 1964), Vol.1, No.3, p.142.
48. Kē Guō, *Qiǎntán Zhōngguó Kēxué De Fāzhǎn* (A Discussion of the Development of Science and Technology of China) (Hong Kong: Xīnyīdài Cultural Association, 1991), p.75.
49. Zédōng Máo, *Máo Zédōng Xuǎnjì Dìwǔjuàn* (Selected Works of Máo Zédōng) (Beijing: People's Publishing House, 1977), Vol.5, pp.462-463. See also State Planning Commission Report on Socialist Construction, New China News Agency, 12 September 1977, in BBC FE/5613/BII/10.
50. The decision was made in August 1958. The document is in Harold C. Hinton, *Government & Politics in Revolutionary China: Selected Documents, 1949-1979* (Wilmington, Delaware: Scholarly Resources Inc., 1982),

pp.90-91.

51. See the "Resolution of the Eighth National Congress of The Communist Party of China on the Political Report of the Central Committee" adopted on 27 September, 1956; and Zhōu Ēnlái's "Proposals of the Eighth National Congress of the Communist Party of china for the Second Five-Year Plan for Development of the National Economy (1958-1962)." Both documents are in *The Eighth National Congress of the Communist Party of China* (Beijing: Foreign Languages, 1981). See particularly pp.121, 335.
52. Ēnlái Zhōu, "Report on the Work of the Government" which was delivered at the First Session of the Fourth National People's Congress of the People's Republic of China on 13 January, 1975. See *Beijing Review*, 1975, No.4.
53. Xiǎopíng Dèng, *Dèng Xiǎopíng Wénxuǎn, 1975 - 1982* (Selected Works of Dèng Xiǎopíng, 1975 - 1982) (Beijing: People's Press, 1983), p.223.
54. Xiǎopíng Dèng, "Gǎigé Kējì Tǐzhì Shì Wéi Jiějué Shēngchǎnlì" (To Reform the Structure of Science and Technology is for the Liberation of Productive Forces), in State Commission for Restructuring Economy, *Zhōngguó Jīngjì Tǐzhì Gǎigé Shínián* (Ten Years for Economic System Reform of China) (Beijing: Jīngjì Guǎnlǐ Publishing House and Gǎigé Publishing House, 1988), pp.55-56.
55. See the Editorial of the *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 1 April, 1993, p.2.
56. Zixin Lin, "China and the World in the Nineties: Deepening Reform for Technological Progress in China," in Theodor Leuenberger (ed.), *From Technology Transfer to Technology Management* (Berlin, Heidelberg: Springer-Verlag, 1990), p.251.
57. "Five-Year Plan to be Adjusted, Bold Bid to Hasten Economic Reform," in *Míng Bào* (Ming Pao Daily), 8 March, 1993.
58. Jièshí Jiǎng, "Duì Dǎngqián Dǎngzhèng Yú Qīngniántuán Zhī Zhǐshì" (An Instruction to the Party, Government, and Youth League of the Republic of China," *Jiǎng Zǒngtǒng Sīxiǎng Yánlùn Jí* (Collection of Thoughts and Speeches of President Jiǎng Jièshí), edited by Editing Group of the Collection of Thoughts and Speeches of Jiǎng Jièshí, (Taipei: 1966), Vol.18, p.99.
59. Jièshí Jiǎng, *Jiǎng Zǒngtǒng Zuìjìn Yánlùn Xuǎnjí* (Selected Collection of Recent Speeches of President Jiǎng Jièshí), edited by Qíyún Zhāng, (Taipei: National Defence Research Institute, 1971), pp.290-292.

60. "Premier Chiang Ching-kuo's oral administrative [sic.] report to the first meeting of the 57th session of the Legislative Yuan, February 27, 1976," *Free China Review*, Vol.26, No.4 (April 1976), pp.51-60.
61. "Premier Sun Yun-suan's oral administrative [sic.] report to the first meeting of the 66th session of the Legislative Yuan, September 19, 1980," *Free China Review*, Vol.30, No.11 (November 1980), p.58.
62. *President Lee Teng-hui's Selected Addresses and Messages 1988* (Taipei: Government Information Office, 1989), p.23.
63. "National Day Address by Lee Teng-hui, President of the Republic of China, October 10, 1992," in *Free China Journal*, 13 October, 1992, p.7.
64. See Articles 42-43 of the "Common Programme of the Chinese People's Political Consultative Congress," in *Zhōnghuá Rénmín Gònghéguó Gòngróng Gānglǐng Jí Xīn Jiù Xiànfǎ Huìbiān, 1949-1970* (A Collection of The Common Programme of the Chinese People's Political Consultative Congress, Old and New Constitutions, 1949-1970) (Hong Kong: Northern Press, 1970), p.12; and Article 24 of the *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), p.21.
65. Ēnlái Zhōu, "On Questions Concerning Intellectuals," *Selected Works of Zhou Enlai* (Beijing: Foreign Languages, 1989), Vol.2, p.186.
66. *Guāngmíng Rìbào* (Guangming Daily), 22 May, 1958.
67. Yi Fang, "Outline National Plan for the Development of Science and Technology, Relevant Policies and Measures," *Beijing Review*, 7 April, 1978, No.14, p.11.
68. Zǐyáng Zhào, *China's Economy and Development Principles: A Report By Premier Zhao Ziyang* (Beijing: Foreign Languages, 1982), pp.57-58.
69. Section 9 of the "Decision of the Central Committee of the Communist Party of China on the Reform of the Science and Technology Management System." See *Rénmín Rìbào* (People's Daily), 20 March, 1985, pp.1, 3. The English translation of the Decision is in the State Science and Technology Commission of the People's Republic of China, *Guide to China's Science and Technology Policy: White Paper on Science and Technology, No.1* (Beijing: China Academic Publishers, 1987), pp.395-407.
70. Peng Li, "Resolutely Carry Out the Principles of Improvement, Rectification and Deepened Reform," in *The Second Session of the Seventh National People's Congress of the People's Republic of China, 1989* (Beijing: Foreign Languages, 1989), p.29; and Zǐyáng Zhào, "Report on the Seventh Five-Year Plan," in *The Fourth Session of the Sixth National People's Congress, April 1986* (Beijing: Foreign Languages, 1986), pp.24-25.

71. Xiǎopíng Dèng, *Dèng Xiǎopíng Tóngzhì Lùn Jiàoyù* (The Educational Thoughts of Dèng Xiǎopíng) (Beijing: People's Education, 1990), p.174.
72. Jiǎng Zémín presented the importance of science and technology as the first productive forces when he attended a meeting with the party members of the Chinese Academy of Sciences on 24 April, 1992. The other priority he put across was the improvement of the quality of labour force. See *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, Overseas edition), 25 April, 1992. See also Zémín Jiǎng, *Zài Qīngzhǔ Zhōngguó Gòngchǎndǎng Chénglì Qīshí Zhōunián Dàhuìshàng De Jiǎnghuà* (Speech On the Celebration of the Seventy Anniversary of the Establishment of the Chinese Communist Party) (Beijing: People's Press, 1991), p.25.
73. *Zhōngguó Zhōngyāng Guānyú Zhìdìng Guómín Jīngjì Hé Shèhuì Fāzhǎn Shínián Guìhuà Hé Bāwǔ Jīhuà De Jiànyì* (The Ten-year Planning of the National Economy and Social Development and the Proposal On the Eighth Five-year Plan by the Chinese Communist Party) (Beijing: People's Press, 1991), pp.28-29.
74. *Míng Bào* (Ming Pao Daily), 24 February, 1993, p.8.
75. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, Overseas edition), 20 April, 1992.
76. Article 158 of the *Zhōnghuá mínguó Xiànfǎ* (Constitution of the Republic of China) (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1989), p.60. For the English translation, see *Constitution of the Republic of China* (Taipei: Government Information Office, Executive Yuan, 3rd ed., 1988), p.48.
77. Jièshí Jiǎng, *Jiǎng Zǒngtǒng Sīxiǎng Yánlùn Jí* (Collection of Thoughts and Speeches of President Jiǎng Jièshí), edited by Editing Group of the Collection of Thoughts and Speeches of Jiǎng Jièshí, (Taipei: 1966), Vol.2, p.158.
78. Jièshí Jiǎng, "Kēxué De Dàolǐ Xùbiān" (The Theory of Science, continued), in *Xiǎn Zǒngtǒng Jiǎng Gōng Sīxiǎng Yánlùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.29, p.305.
79. "Premier Chiang Chiang-kuo's oral administrative [sic.] report to the first meeting of the 53rd session of the Legislative Yuan, February 26, 1974," *Free China Review*, Vol.24, No.3 (March 1974), p.58.
80. Research, Development, and Evaluation Commission, *Annual Review of Government Administration, the Republic of China, 1979-1980* (Taipei: Executive Yuan, 1980), p.149; and *Annual Review of Government Administration, the Republic of China, 1980-1981* (Taipei: Executive Yuan,



1981), p.184.

81. Research, Development, and Evaluation Commission, *Annual Review of Government Administration, the Republic of China, 1986* (Taipei: Executive Yuan, 1986), p.196; and *Annual Review of Government Administration, the Republic of China, 1987* (Taipei: Executive Yuan, 1987), p.213.
82. Dēnghuī Lǐ, "Welcome Address to the Fourth Asia and Oceania Congress of Nuclear Medicine, October 31, 1988" *President Lee Teng-hui's Selected Addresses and Messages 1988* (Taipei: Government Information Office, 1989), p.66.
83. Xījiāo Zhōng (ed.), *Zhōngguó Jìshù Shìchàng Kāifā Zhǐnán* (Guideline to China's Market for Science and Technology) (Liáoníng: Liáoníng People's Press, 1988), p.2.
84. Zhǐtíng Wáng, *Táiwān Jiàoyù Shǐliào Xīnbǎn* (The History of Education in Taiwan: a New Collection) (Taipei: Commercial Press, 1978), p.126.
85. The figures of 1952, 1978 and 1985 are in State Statistical Bureau (ed.), *Zhōngguó Kēxué Kējì Sìshínián* (Statistics on the Science and Technology of China, 1949-1989) (Beijing: China Statistics Press, 1990), p.203; and the figure of 1992 is in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 1 July, 1993, p.3.
86. *Taiwan Statistical Data Books, 1992* (Taipei: Council for Economic Planning and Development, 1992), p.108.
87. National Science Council, *Zhōnghuá mínguó Kēxué Jìshù Tǒngjì Yàolǎn, 1993* (Indicators of Science and Technology, Republic of China, 1993) (Taipei: Executive Yuan, National Science Council, 1993), p.12.
88. The official statistics of the PRC about manpower of science and technology were very confused, and mostly included technical and clerical workers. The number of scientists and engineers was chosen in this thesis, and was 309,007 in 1986; and 349,522 in 1989. See State Statistical Bureau (ed.), *Zhōngguó Kēxué Kējì Sìshínián* (Statistics on Science and Technology of China, 1949-1989) (Beijing: China Statistics Press, 1990), p.210.
89. The figure included people who held diploma awarded by junior colleges. See *Quójiā Jiànshe Liù Nián Jīhuà (1991 - 1996) Dì Ēr Cè: Hòuzhí Chǎnyè Fāzhǎn Qiánlì* (Six-year Plan of National Construction, 1991 - 1996, Vol. 2: Utilization and Development of Resources) (Taipei: The Executive Yuan, 1991), p.242.
90. National Science Council, *Zhōnghuá mínguó Kēxué Jìshù Tǒngjì Yàolǎn, 1993* (Indicators of Science and Technology, Republic of China, 1993) (Taipei: Executive Yuan, National Science Council, 1993), p.13.

91. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 4 January, 1993, p.1.
92. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 1 July, 1993, p.3.
93. *Republic of China Yearbook, 1990-91* (Taipei: Kwang Hwa Publishing Company, 1990), p.399.
94. Abdus Salam, *Notes on Science, Technology and Science Education in the Development of the South* (a monograph prepared for the 5th and 6th Meetings of the South Commission of the Third World Academy of Sciences, 27-30 May 1989, Maputo, Mozambique and 11-14 November 1989, New Delhi), p.42.
95. Richard P. Suttmeier, *Science, Technology, and China's Drive for Modernization* (Stanford: Hoover Institute, Stanford University, 1980), p.20.
96. Administrative Research and Evaluation Commission, *A Review of Public Administration, the Republic of China, 1973* (Taipei: Executive Yuan, 1973), p.20.
97. For the list of 11 foreign scientists and technologists in the Advisory Team (1993), see National Science Council, *Zhōnghuá mínguó Kēxué jìshù Niánjiàn* (Yearbook of National Science and Technology, Republic of China, 1992) (Taipei: Executive Yuan, National Science Council, 1993), p.32.
98. The six national science and technology plans were: "Twelve-Year Plan for Scientific and Technological Development (1956-1967)," "Ten-Year Plan for Scientific and Technological Development (1963-1972)," "Eight-Year Plan (1978-1985)," "Outline Report on Policy Concerning the Development of National Science" in 1981, "Decision on the Reform of the Scientific and Technological Management System" in 1985, and "Higher Technology Research and Development Programme" in 1986. However, not all of them were accessible to the public, and the unpublished science plans needed to be reconstructed from the other PRC's reports.
99. The emphasis on the nuclear industry in the late 1950s led to the first successful launch of a missile in 1960, and a test of an atomic bomb in 1964.
100. *The Eighth National Congress of the Communist Party of China* (Beijing: Foreign Languages, 1981), p.265.
101. "Five-Year Plan to be Adjusted: Bold Bid to Hasten Economic Reform," in *Míng Bào* (Ming Pao Daily), 8 March, 1993.

102. Yuánmíng Lúo, and Mínggān Xiè, *Zhōngguó Jīngjì Fāzhǎn Sìshínián* (Economic Development of China in the Past Forty Years), p.21.
103. The ratio was calculated by this thesis from the data given in *Zhōnghuá Tǒngjì Niánjiàn, 1990* (Statistical Yearbook of China, 1990) (Beijing: China Statistics, 1990), p.159.
104. H. J. Duller, *Technique in Taiwan: The Role of Technology in Taiwan's Past and Present Development* (Taipei: National Science Council, 1983).
105. "Quójiā Chángqī Fāzhǎn Kēxué Jīhuà Gānglǐng" (Guideline for Long-Range Development of Science) in *Quójiā Chángqī Fāzhǎn Kēxué Wěiyuánhui Niánbào* (1965 Annual Report of the Council for Long-Range National Science Development) (Taipei: Council for Long-Range National Science Development, 1965), pp.398-399.
106. According to Jiǎng Jièshí, psychological construction was to equip citizens with national spirit. Political construction was to build up a systematized, bureaucratized, and scientific Taiwan, and such construction included census, police, transport, and popularization of education. Economical construction included electrification and industrialization. The development of the economy was to be expressed through the equalization of the right to land and restraint on capital. Social construction aimed at training people to abide by the law and the creation of a structuralized and modernized society. See Jièshí Jiǎng, "The Theme of the Psychological Construction of the Recovery of Mainland China and the Main Idea of the Construction of Taiwan as a Model Province of the Three Principles of the People," *Xiān Zǒngtǒng Jiǎng Gōng Quánjī* (The Complete Works of late President Jiǎng Jièshí) edited by Zhāng Jīxuán (Taipei: Chinese Cultural University Press, 1984), Vol.2, pp.2492-2493.
107. Wu's comment was quoted in "Science Development," *Free China Review*, Vol.17, No.7 (July 1967), p.78.
108. The six major national science and technology plans of the ROC were the "Programme for the Development of National Science, 1968-1979" proposed in 1968; the "Programme for the Development of Science" proposed in 1979, but revised to be the "Plan for the Development of Science and Technology" in 1982; the "Ten-year Long-range Plan for the Development of National Science and Technology, 1986-1995" in 1986; the Six-year Mid-range Plan for the Development of National Science and Technology, 1991-1996" in 1992; and the "Twelve-year Long-range Plan for the Development of National Science and Technology, 1991-2002" in 1992.

109. Administrative Research and Evaluation Commission, *A Review of Public Administration, the Republic of China, 1975* (Taipei: Executive Yuan, 1975), p.58.
110. Jīngguó Jiǎng, "Premier Chiang Ching-kuo's Oral Administrative Report [sic.] to the First Meeting of the 58th Session of the Legislative Yuan, 17 September, 1976," *Free China Review*, Vol.26, No.10 (October 1976), pp.54-64.
111. "Challenge Posed for Engineers," *Free China Review*, Vol.27, No.8 (August 1977), p.42.
112. *Quójiā Jiànshè Liù Nián Jīhuà (1991 - 1996) Dì Yī Cè: Zǒngtǐ Jīngjì Fāzhǎn Mùbiāo* (Six-year Plan of National Construction, 1991 - 1996, Vol. 1: Development Objectives of the Whole Economy) (Taipei: The Executive Yuan, 1991), pp.40-41.
113. The expenditures on research and development for information technology, automation and materials were respectively NT\$4.24 billion (27.5% out of 15.43 billion), 2.58 billion (16.7%), and 3.96 billion (25.7%) in 1986; and 16.63 billion (38.7% out of 37.77 billion), 6.40 billion (17.0%), and 5.85 billion (15.5%) in 1990. The numbers of researchers on information technology, automation and materials were 2,776 (30.1% out of 9,234), 1,736 (18.8%), and 1,627 (17.6%) in 1986; and 4,836 (32.1% out of 15,059), 1,476 (9.8%), and 3,008 (20.0%) in 1990. See *Taiwan Statistical Data Books, 1992* (Taipei: Council for Economic Planning and Development, 1992), p.107.
114. In 1990, the PRC made contracts with Western countries to license for the use of their science and technology. The PRC agreed to pay in US\$ million: 3,220 to the US; 1,330 to West Germany; 1,030 to Canada; 610 to Italy; 430 to the United Kingdom; and 5,170 to other countries. In 1991, the PRC contracted to pay in US\$ million: 13,740 to the USSR; 3,530 to Italy; 3,440 to the United Kingdom; 2,690 to Japan; 2,650 to Germany; 2,460 to Spain; and 7,020 to others. See Hú Liú, "1990 Nián Zhōngguó Jìshù Màoyì Gàikuàng," (The General Situation of the Trade of Science and Technology in the PRC), in Editorial Board of the Almanac of China's Foreign Economic Relations and Trade (ed.), *Zhōngguó Duituài Jīngjì Màoyì Niánjiàn, 1991* (Almanac of China's Foreign Economic Relations and Trade, 1991) (Beijing: China's Society, 1991), p.52; and Chūnhuá Zhào, "1991 Nián Wǒguó Jìshù Jìnjūkǒu Zǒngshù" (A General Report on the Export and Import of Science and Technology of the PRC in 1991), in Editorial Board of the Almanac of China's Foreign Economic Relations and Trade (ed.), *Zhōngguó Duituài Jīngjì Màoyì Niánjiàn, 1992* (Almanac of China's Foreign Economic Relations and Trade, 1992) (Beijing: China's Society, 1992), p.52

115. In terms of trading amount, the top five supplying countries of the PRC in 1992 were Italy (US\$ 1.44 billion), the US (US\$ 1.43 billion), Japan (US\$ 1.37 billion), Germany (US\$ 0.73 billion), and Spain (US\$ 0.39 billion). See *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 25 February, 1993, p.1.
116. The percentages of imports from the US and Japan by the ROC (out of its total imports value) were respectively 45.7% and 31.2% in 1952; 31.7% and 39.8% in 1965; and 21.9% and 30.2% in 1992. See *Taiwan Statistical Data Books, 1993* (Taipei: Council for Economic Planning and Development, 1993), p.201.
117. Denis Fred Simon, "Technology Transfer and National Autonomy," in Edwin A. Winckler, and Susan Greenhalgh (eds.), *Contending Approaches to the Political Economy of Taiwan* (Armonk, New York: East Gate, 1988), p.213.
118. Between 1968 and 1983, the value of ROC's imports from the US was US\$ 34.3 billion, whereas that of ROC's exports to the US amounted to US\$ 61.2 billion. In other words, the trade deficit between these two countries was US\$ 26.9 billion in favour to the ROC. See Kwoh-Ting Li, "The Mutual Benefits of Sino-American Cooperation in Science and Technology," *Sino-American Relations*, Vol.12, No.1 (Spring, 1986), pp.3-9.
119. "Ballooning Deficit with Japan," in *Free China Journal*, 9 April, 1993, p.3.
120. See the Editorial, "On Questions Concerning China's Foreign Economic Relations," *Hóngqí* (Redflag), 16 April, 1982. For the English translation, see Editorial Board of the Almanac of China's Foreign Economic Relations and Trade (ed.), *Zhōngguó Jīngjì Dūwài Màoyì Niánjiàn* (Almanac of China's Foreign Economic Relations and Trade, 1984) (Hong Kong: China Resources Consultancy Co., Ltd., 1984), p.381.
121. The breakdown of the distribution of the value of contracts for industries under different ministries was: Ministry of Metallurgical Industry (28.2%); Ministry of Water Conservancy and Electric Power (10.6%); Ministry of Railway (7.2%); Ministry of Electronics Industry (4.0%); Ministry of Machine Building Industry (3.7%); China National Petro-chemical Corporation (3.3%); Ministry of Textile Industry (3.1%); Ministry of Building Materials Industry (2.6%); Ministry of Posts and Telecommunications (2.5%); China National Non-ferrous Metals Corporation (2.4%); Ministry of Petroleum Industry (2.1%); and others (30.3%). See Fengzhou Wu, "Marked Progress Made in China's Introduction of Technology in 1985," in Editorial Board of the Almanac of China's Foreign Economic Relations and Trade (ed.), *Zhōngguó Jīngjì Dūwài Màoyì Niánjiàn* (Almanac of China's Foreign Economic Relations and Trade, 1986) (Hong Kong: China Resources Consultancy Co., Ltd., 1986), p.479.

122. Hú Liú, "1990 Nián Zhōngguó Jìshù Mào'yì Gàikuàng," (The General Situation of the Trade of Science and Technology in the PRC), in Editorial Board of the Almanac of China's Foreign Economic Relations and Trade (ed.), *Zhōngguó Duìwài Jīngjì Mào'yì Niánjiàn*, 1991 (Almanac of China's Foreign Economic Relations and Trade, 1991) (Beijing: China's Society, 1991), p.52.
123. The key imported science and technology in 1992 were related to energy, petrochemistry, communication, and electronics. See *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 25 February, 1993, p.1.
124. H. J. Duller, *Technique in Taiwan: The Role of Technology in Taiwan's Past and Present Development* (Taipei: National Science Council, 1983), pp.15-16.
125. These 8 areas of technologies were divided into several sub-items: information technology including computer systems, peripheral computer equipment, expert systems, applied software, multi-functional computer workstations and office automation, and telecommunication; energy technology including utilization and convention, exploitation of alternative sources, nuclear energy, and energy transfer; materials technology for polymere, and inorganic materials; automation technology for integrated computers, control of automated systems, automated equipment; electro-optics including regional fibre optic networks, optical inspection control and laser processing; biotechnology including genetic engineering, hyoridoma technique, cell and tissue culture, enzyme and fermentation, and insect sex hormone; hepatitis control including preventing, and vaccine; and food technology including food quality, food processing and packaging, and food safety. See Anton Gälli, *Taiwan R.O.C.: A Chinese Challenge to the World* (Köln and London: Weltforum Verlag München, 1987), pp.134-135.
126. The list was narrowed down in the Six-Year Plan (1991-1996) to 8 key items which were perceived to be beneficial to new and conventional industries. They were electro-optics, software technology, automation technology, material applications, auto-sensing technology, bio-technology, resource exploration, and energy-saving technology. See *Zhōnghuámínguó Xíngzhèng Gàikuàng, Míngguó 79 Nián* (Annual Review of Government Administration of Republic of China, 1990) (Taipei: Research, Development and Evaluation Commission, the Executive Yuan, 1990), p.265.
127. The Kaohsiung Export Processing Zone turned Kaohsiung from a deserted land into an advanced harbour with industrial complex. The labour wage of the ROC was low as compared with other competitors: about less than one-tenth of that for similar work in the US, one-third of that in Japan, and half of that in Hong Kong. The commodities

covered a wide range from garments to kitchen utensils, metal, machinery, and electrical appliances. See K. S. Yum, *Successful Economic Development of the Republic of China* (New York: Vantage Press, 1968), p.21-22.

128. *Free China Weekly*, 12 February 1967.
129. In 1986, up to 25% of manufacturing products could be sold in the domestic market in the ROC. See Richard Baker, *Key Prospects and Market Conditions in Taiwan, R.O.C.* (Cardiff: CSP Economic Publications, 1987), p.42.
130. The increase of highly populated cities with more than 100,000 people was greatly reduced in the 1980s. In 1950, there were only 7 such cities. Within thirty years, the number increased to 22. But the growth seemed to be saturated in 1980s. Up to 1985, there were only 24 highly-populated cities. See Alden Speare, Jr., Paul K. C. Liu, and Ching-lung Tsay, *Urbanization and Development: The Rural-Urban Transition in Taiwan* (Boulder: Westview, 1988), pp.18-19.
131. Richard Baker, *Key Prospects and Market Conditions in Taiwan, R.O.C.* (Cardiff: CSP Economic Publications, 1987), pp.37-38.
132. Taihe Huang, "A Great Social Practice," in Chūnlín Hè (Gen. ed.), *Zhōngguó Jīngjì Tèqū Yu Yánhǎi Jīngjì Jìshù Kāifāqū Niánjiàn* (Yearbook of China's Special Economic Zones and Economic and Technological Development Zones) (Beijing: Gǎigé, 1991), pp.3-11.
133. Hanhuai Tan, "Advance along the Road of Opening to the Outside World," in Chūnlín Hè (Gen. ed.), *Zhōngguó Jīngjì Tèqū Yu Yánhǎi Jīngjì Jìshù Kāifāqū Niánjiàn* (Yearbook of China's Special Economic Zones and Economic and Technological Development Zones) (Beijing: Gǎigé, 1991), pp.12-16.
134. *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 12 March, 1993, p.3.
135. In the period of 1984 and 1985, the PRC set up 14 Economic and Technological Development Zones. They were in Dalian, Qinhuangdao, Tianjin, Yantai, Qingdao, Lianyungang, Nantong, Minhang, Hongqiao, Caohejing, Ningbao, Fuzhou, Guangzhou, and Zhanjing. Between 1992 and 1993, another 16 ETDZs were established. See *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 2 July, 1993, p.1.
136. Yaoxing Hu, "Science and Technology in China: Transition and Dilemma," in Special issue on "Science, Technology and Development: North-South Co-operation," *Science, Technology & Development*, Vol. 9, No. 1-2 (April-August, 1991) (London: Frank Cass, 1991), p.70.

137. Richard P. Suttmeier, *Science, Technology, and China's Drive for Modernization* (Stanford: Hoover Institute, Stanford University, 1980); Xījiāo Zhōng (ed.), *Zhōngguó Jìshù Shìchàng Kāifā Zhǐnán* (Guideline to China's Market of Science and Technology) (Liáoníng: Liáoníng People's Press, 1988), p.135; Tony Saich, *China's Science Policy in the 80s* (Manchester: Manchester University Press, 1989); and Yaoxing Hu, "Science and Technology in China: Transition and Dilemma," in Special issue on "Science, Technology and Development: North-South Co-operation," *Science, Technology & Development*, Vol. 9, No. 1-2 (April-August, 1991) (London: Frank Cass, 1991), pp.70-71.
138. Department of Policy Regulation, State Science and Technological Commission (ed.), *Kējì Jīngjì Shèhuì: 2000 Nián Zhōngguó Zhòngdà Wèntí Yánjiū* (Science and Technology, Economics, and Society: A Study of China's Important Problems Towards the Year 2000) (Beijing: Earthquake, 1990), p.137.
139. Denis Fred Simon, "Technology Transfer and National Autonomy," in Edwin A. Winckler, and Susan Greenhalgh (eds.), *Contending Approaches to the Political Economy of Taiwan* (Armonk, New York: East Gate, 1988), p.222.
140. Zédōng Máo, "On New Democratism," in *Máo Zédōng Xuǎnjì Dièrjuàn* (Selected Works of Máo Zédōng) (Beijing: People's Press, 2nd ed., 1991), Vol.2, p.679.
141. Chi Ti, "Industrial Modernization," *Beijing Review*, 30 June, 1978, No.26, p.9.
142. Shǎoqí Liú, "The Political Report of the Central Committee of the Communist Party of China to the Eighth National Congress of the Party," in *The Eighth National Congress of the Communist Party of China* (Beijing: Foreign Languages, 1981), pp.51-52.
143. Richard P. Suttmeier, *Research and Revolution: Science Policy and Societal Change in China* (Lexington, Massachusetts: Lexington Books, D. C. Heath and Company, 1974), p.35.
144. Theodore Hsi-En Chen, "Science, Scientists, and Politics," in Sidney H. Gould (ed.), *Sciences in Communist China: a Symposium Presented at the New York Meeting of the American Association for the Advancement of Science, December 26-27, 1960* (Washington, D.C.: American Association for the Advancement of Science, 1961), p.87.
145. Xùlún Mǎ, "Speech at the First National Conference on Higher Education," in June 1951. See Immanuel C. Y. Hsü, "The Impact of Industrialization on Higher Education in Communist China," in Frederick Harbison and Charles A. Myers, *Manpower and Education: Country Studies in Economic Development* (New York: McGraw-Hill,



- 1985), pp.202-231.
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  152. The return rate of the questionnaire was 95.9%. The report of the survey is in Fāngliáng Zhōu (ed.), *Zhīshífēnzǐ Jīngjì Zhèngcè Yánjiū: Kùnjīng Yu Chūlù* (A Study of Intellectuals and Economic Policy: Difficulties and Breakthrough) (Beijing: Chūnqiū, 1989), pp.261-275.
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  156. Guāngshào Zhōu delivered his speech in the Sixth Institution Committee Plenary Meeting on 20 April, 1992. See *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, Overseas edition), 21 April, 1992.

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158. Jièshí Jiǎng, "Kōngjūn Jiùguó Lùn" (To Save the Nation with the Air Force), *Jiǎng Zǒngtǒng Sīxiǎng Yánlùn Jí* (Collection of the Thoughts and Speeches of President Jiǎng Jièshí) (Taipei: 1966), Vol.12, p.183.
159. The ways of doing things, as suggested by Jiǎng Jièshí, were to start doing from the immediate to long-term goals, from low to high position, from a small portion to a whole, and from easy problems to more difficult ones. See Jièshí Jiǎng, "Kēxué De Dàolǐ" (The Theory of Science), in *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yánlùn Zǒngjí* (A Complete Collection of the Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.13, p.17-22.
160. Jièshí Jiǎng, "Cóngjūn Zhīshí Qīngnián Dìyīqī Rùwǔ Xùncí" (A Speech to the First Batch of Youth Recruited for Military Service: Military Knowledge), *Jiǎng Zǒngtǒng Sīxiǎng Yánlùn Jí* (Collection of the Thoughts and Speeches of President Jiǎng Jièshí) (Taipei: 1966), Vol.18, p.243.
161. Jièshí Jiǎng, *Jiǎng Zǒngtǒng Sīxiǎng Yánlùn Jí* (Collection of the Thoughts and Speeches of President Jiǎng Jièshí), edited by the Editing Group of the Collection of Thoughts and Speeches of Jiǎng Jièshí, (Taipei: 1966), Vol.2, p.162.
162. See Jiǎng Jièshí's speech delivered at the opening of the third plenary session of the First National Assembly in Taipei on 20 February, 1960. The speech is in *Free China Review*, Vol.10, No.3 (March 1960), pp.6-12.
163. Yànshì Jiǎng, "Kēxué De Shēngchǎn Jiàoyù" (Production Education of Science), *Jiàoyù Yu Wénhuà* (Education and Culture Weekly), Vol.6, No.8 (19 February 1955), pp.9-10.
164. The intermediate goals were to realize the Three People's Principles in the whole country; to achieve national independence, equity of people's rights, the improvement of people's living standards; to train manpower of science; to enhance the quality of education; to create modernized citizens; and to build up a modernized society. The long-term goals were to propagate the Three People's Principles among the world; to create an "all-under-heaven" political reality; and to safeguard the peace, liberty and blessing of the people. See Jièshí Jiǎng, "The Spirit of Recovery of the Mainland China and the Objective and Strategy of National Reconstruction," *Jiǎng Zǒngtǒng Jí* (A Collection of works of President Jiǎng Jièshí) (Yáng Míng Shān: Zhōnghuá Dàidiǎn, 1974),

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165. Jièshí Jiǎng, "Kēxué De Dàolǐ Xùbiān" (The Theory of Science, continued), in *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yánlùn Zǒngjí* (A Complete Collection of the Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.29, p.305.
166. Jièshí Jiǎng, "Kēxué De Dàolǐ" (The Theory of Science), in *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yánlùn Zǒngjí* (A Complete Collection of the Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.13, p.14.
167. "Premier Chiang Ching-kuo's oral administrative [sic.] report to the first meeting of the 54th session of the Legislative Yuan, September 17, 1974," *Free China Review*, Vol.24, No.10 (October 1974), p.56.
168. Jīngguó Jiǎng, "Chairman Chiang Ching-kuo's Opening Address to the 12th National Congress of Kuomintang of China, March 29, 1981" *Free China Review*, Vol.31, No.5 (May 1981), pp.51-56.
169. "Interviews with Mr. Allen H. Neuharth, Chairman of the Gannett Company Inc.," in *President Lee Teng-hui's Selected Addresses and Messages 1988* (Taipei: Government Information Office, 1989), p.38.
170. "Interviews with Lee Edwards, Special Writer for Reader's Digest and Anne Cheng, Editor of the Chinese Edition of Reader's Digest," in *President Lee Teng-hui's Selected Addresses and Messages 1988* (Taipei: Government Information Office, 1989), pp.42-43.
171. This was expressed in the presidential inauguration speech of Lǐ Dēnghuī in 1990. Part of the speech is quoted in Chūnshān Zhào, "Biàndòng Zhōng De Hǎixiá Liǎngàn Guānxì" (The Changing Relations between the PRC and ROC), in Zhuōyún Xǔ et al., *Zhànzài Lìshǐ De Zhuǎnlièdiǎn Shàng: Lǐ Dēnghuī Xiānshēng Zhèngcè Lǐniàn Zhī Tànxī* (Facing a Historical Turning Point: an Analysis of the Policy Concept of Mr. Lǐ Dēnghuī) (Taipei: Cheng Chung, 1990), p.185.

## **CHAPTER SIX**

### **THE ECONOMIC TASK OF HIGHER EDUCATION IN THE PRC AND ROC: SCIENCE AND TECHNOLOGY**

#### **6.1 PURPOSE AND ARGUMENT**

This chapter describes the economic task of higher education in producing technical cadres of science and technology in the PRC and ROC between 1949 and 1993. The chapter will first highlight the domestic relations between higher education and economic construction in the PRC and ROC; and second, trace the external relations of these two Chinese higher education systems with other countries for the importation of foreign science and technology.

This chapter argues that the higher education systems of the PRC and ROC imported foreign science and technology for economic purposes. However, they differed in strategies. In the PRC, science and technology education preceded economic modernization; but in the ROC, it followed economic modernization. In other words, the ruling elite of the PRC attempted to create economic modernization by improving its higher education system; whereas the ruling elite of the ROC adjusted its higher education system to sustain the industrializing economy. Moreover, the external educational relations of the higher education systems in the PRC and ROC followed their international political and economic relations.

Four infrastructural indicators are chosen to demonstrate the institutionalization of the transfer of foreign science and technology into the higher education systems of the PRC and ROC. These indicators are: the

establishment of institutes; the change in curriculum; the exchange of teaching personnel and students; and international cooperation activities in the higher education systems of the PRC and ROC.

The establishment of institutes and curriculum are chosen because their changes reflect the influences of foreign science and technology education. The exchange of teaching personnel and student and international cooperation programmes at home are selected because through these activities human technology transfer takes place. Human technology transfer is defined in this thesis as those activities in which human beings are carriers of science and technology expressed in the form of knowledge and skills. This thesis accepts Leo A. Orleans' argument that technology transfer, as the "transplanting of knowledge" in a country, can be conducted through its returnees who formerly receive specialist training in foreign countries.<sup>1</sup> This thesis also proposes that the recruitment of foreign experts of science and technology to teach or do research in a host country is another form of human technology transfer.

This chapter will begin discussing the relations of higher education with the economy and science and technology in the PRC and ROC. The discussion will be followed in sequence by an examination of the establishment of institutes, curriculum change, the exchange of teaching personnel and students, and finally the activities of international joint programmes in the higher education systems of PRC and ROC. Although this chapter focuses on the training of technical cadres in both higher education systems, it should, however, be noted that the ruling elites of both countries expected their graduates to be "politically reliable" (as discussed in Chapter Four).

## 6.2 HIGHER EDUCATION AND NATIONAL CONSTRUCTION IN THE PRC AND ROC

This thesis argues that like transitional Chinese higher education (between 1840 and the 1940s), the higher education systems of the PRC and ROC broke away from classical Chinese higher education (before 1840) in two ways: an emphasis on the economic tasks of higher education in the production of technical cadres; and a stress on science and technology education.

Before the geo-political split between the PRC and ROC in 1949, the higher education system in mainland China (as discussed in Chapter Two) had been divided into two separate educational entities under the respective leadership of the CCP and CNP in 1921. However, both higher education systems emphasized education in science and technology.<sup>2</sup>

After the split, the PRC and the ROC continued to stress the training of technical cadres in higher education for the purposes of economic construction.

In the PRC in the founding period, a general educational task was to train personnel for national construction work; and this kind of training was expected to be characterized by the integration of theory with practice.<sup>3</sup> A specific economic task of the PRC higher education was to train "high-level specialized" personnel for national economic construction.<sup>4</sup> The first Minister of Education of the PRC, Mǎ Xùlún, suggested that "higher education must meet national needs in industry, agricultural, and national-defence" and "must serve economic construction." He also proposed that the teaching materials of higher education institutions had to "meet the needs of national construction."<sup>5</sup>

The emphasis on the training of technical cadres in higher education of the PRC continued in the 1980s and the early 1990s. In 1985, the PRC

authorities specified that education was to produce "socialist builders and successors," and was related to socialist construction: in this way, "education must serve the construction of socialism, and the construction of socialism must depend on education."<sup>6</sup> In the Seventh Five-Year Plan (1986-1990), education and economic development were perceived as having equal importance to socialist construction.<sup>7</sup>

The ruling elite of the PRC also maintained the 1911 Republican striving for science in its higher education system, and gave different interpretations over specific periods. According to Máo, education as part of "new democratic" culture must be "scientific" in the sense that education must oppose all feudalism and blind thoughts, and must stress practicality, objective truth, and unity of theory and practice.<sup>8</sup> In the First National Conference on Higher Education in June 1950, Premier Zhōu Ēnlái explained that education became scientific in its content by stressing scientific theory which raised the experience derived from practice to the level of rationality, and which in turn guided the practice.<sup>9</sup> According to Mǎ Xùlún, the term "intellectuals" seems to cover only "scientists and technical specialists," and the content of higher education was also one which should be "integrated with scientific knowledge."<sup>10</sup> In December, 1952, the new Minister of Education, Zhāng Xīruò, suggested that the task of the newly established Ministry of Higher Education was to train a large number of technical personnel in order to cater for the needs of industrialization.<sup>11</sup>

Under the leadership of Dèng after 1978, the training of technical cadres in higher education was perceived as part of the conversion process of science

and technology into productive forces. The 1985 education reform emphasized that the task of higher education was to train specialized personnel and to develop science, technology and culture for socialist modernization.<sup>12</sup> This theme was repeated in the 1993 reform plan.<sup>13</sup> In this plan, education was given an economic task, which was first proposed by Dèng, to "orient [the PRC] towards modernization, towards the world, and towards the future."<sup>14</sup> The ruling elite of the PRC speculated that economic competition between countries in the future would be mainly a contest between their capacities in science and technology.<sup>15</sup>

As in the PRC, higher education in the ROC was used to train high-level technical cadres for economic purposes. Jiǎng Jièshí perceived that the living power of a modern nation consisted of education, economics, and military force. Among these three elements, education was the most fundamental and was the coordinator of the other two.<sup>16</sup> The Minister of Education, Chén Lífū, further specified the aim of education: to make the national economy prosperous and to strengthen national defence.<sup>17</sup> Education through the Principle of National Livelihood, according to the Ministry of Education, aimed at the development of the national economy and the enrichment of citizens' life in the ROC.<sup>18</sup> In a report on the proposal of the development of public higher education institutions between 1992 and 1995, the Ministry of Education reminded these institutions of the importance of gearing their curriculum to the needs of the industrialized economy in Taiwan.<sup>19</sup> Therefore, education was perceived as an important key in the transformation of Taiwan from an agricultural to an industrial economy in the



last forty-four years.<sup>20</sup>

In particular, the ROC authorities inherited the pre-1949 Republican emphasis on the use of science and technology to transform the agricultural economy in Taiwan, and they continued to stress, according to Jiǎng, the promotion of scientific methodology and technology.<sup>21</sup> In the 1950s, science was suggested by Jiǎng Jièshí as a basis to measure the "effectiveness" of economic and social reforms.<sup>22</sup> To him, all knowledge must converge to the Three People's Principles and all sciences must rest on the strong foundation of national morality.<sup>23</sup>

Moreover, the importance of science and technology education was seen to be equivalent to that of revolution. This was reflected in the slogan, "to save the nation with revolution, and to construct the nation with science."<sup>24</sup> In 1955, Zhāng Qíyún, an official of the Ministry of Education, encouraged students of science and technology to be agents of rural modernization in Taiwan, and to share their knowledge and skills with peasants.<sup>25</sup>

Therefore, the ruling elites of the PRC and ROC related their higher education systems to economic modernization, emphasizing the importance of science and technology education. However, the higher education systems the PRC and ROC inherited from their predecessors were not equipped to supply sufficient and qualified scientists and technologists for immediate economic construction. The ruling elites of these two Chinese countries introduced infrastructural changes in their higher education systems so as to incorporate foreign science and technology for the training of domestic technical cadres. This issue will be discussed in the rest of this chapter. The discussion begins

with an examination of the establishment of institutes in the higher education systems of the PRC and ROC.

### **6.3 ESTABLISHMENT OF INSTITUTES IN THE HIGHER EDUCATION SYSTEMS OF THE PRC AND ROC**

This thesis argues that the higher education system in the PRC was built upon the infrastructural legacy of the pre-1949 Republican government, but was restructured after the manner of Soviet higher education. The higher education system in the ROC was built upon the infrastructural legacy of the Japanese colonial government, but was reshaped according to the pre-1949 Republican higher education system which was modelled upon American higher education in the early 1920s. Moreover, these two Chinese higher education systems differed in the emphases and pace of their production of technical cadres over specific periods.

#### **6.3.1 Institutional Reorganization in the PRC**

This section describes institutional reorganization in the higher education system of the PRC. This thesis argues that the PRC, despite the inheritance of the pre-1949 infrastructural legacy, adopted the Soviet model of higher education system so as to produce technical cadres as quickly as possible. However, such adoption created struggles over the relations between science and technology, and between research and higher education when the PRC began to open up its economy to Western countries in the late 1970s.

### 6.3.1.1 Basic Re-organization

In the early 1950s, the higher education system of the PRC inherited the infrastructural legacy of Republican government. Before 1951, there were 49 general universities (which comprised at least 3 fields of study from arts, science, law, commerce, engineering, agriculture, medical science, or education), and 144 independent colleges (having not more than two fields of study) and junior colleges.

However, the ruling elite of the PRC reshaped the institutional combination within the higher education sector by transplanting the model of Soviet higher education.<sup>26</sup> Soviet higher education was marked by a division of labour in the task of producing scientists and engineers.<sup>27</sup> In 1951, some deans of engineering institutions in the PRC perceived that the Republican system could not supply enough scientific and technological manpower for national construction, and proposed to reorganize engineering institutions after the Soviet model of higher education.<sup>28</sup> In 1953, the "Directive Concerning the National Readjustment of Colleges and Faculties of Higher Education" was issued to readjust faculties and institutions of higher learning "according to the experience of the USSR" for the sake of training high-level personnel for industrial construction and teaching.<sup>29</sup>

During the process of restructuring, the government of the PRC "moved" practical fields of study out from general universities into technical institutes, and theoretical subjects and humanities from technical institutes into general universities.<sup>30</sup> As a result, the pre-1949 Republican higher education system was reorganized into a tripartite system: comprehensive universities,

single-faculty institutes; and multi-faculty institutes.

The training of science and technology personnel was shared among these three types of institutions. Comprehensive universities (comprising only basic or natural sciences,<sup>31</sup> humanities and some social sciences) were responsible for training personnel for theoretical research, scientific experimentation and teaching.<sup>32</sup> Single- or many-faculty institutes were responsible for the training of professionals, particularly engineers and other technical personnel. Most of these institutes were directly supervised by the related ministries of the State Council, rather than by the Ministry of Education.

This tripartite higher education system of the PRC was marked by its lopsided approach towards science and technology. This will be discussed in the next section.

#### **6.3.1.2 Bias Towards Science and Technology**

The higher education system of the PRC was characterized by its orientation towards science and technology at the expense of humanities and social sciences. This was indicated by the percentages of both institutes and student enrollment in the areas of science and technology.

In terms of the number of institutions, the higher education system of the PRC has been dominated by science and technology for the last forty-four years. Between 1950 and the early 1980s, the percentage of institutes of science and technology remained over 60 (see Appendix 6.1). Take the distribution of higher education institutes during the period between 1949 and 1957 as an

example. In this period, all types of higher education institutions directly related to the First Five-Year Plan (1952-1957) increased in number, except 4 types of institutes which mainly offered theoretical courses (see Appendix 6.2).<sup>33</sup> The number of comprehensive universities dropped drastically from 49 in 1949 to 17 in 1957, while the number of colleges of finance and economics decreased from 11 to 5. The other two types of colleges, institutes of language and literature and institutes of political science and law, remained comparatively low in number in the same period. Although the proportion of science and technology institutes dropped from 1985, it still remained at a level of just below 50%.

In terms of student enrollment, most students of the PRC took science and technology as their majors. Between 1953 and 1990, the percentage of students enrolled in the fields of science and technology was very high: 68% in 1953; 75.8% in 1965; 72.4% in 1978; and 65.3% in 1990 (see Appendix 6.3). As a natural result, the percentage of graduates was also dominated by students of science and technology: 60.2% in 1953; 77.3 in 1965; 68.4% in 1978; and 64.8% in 1990 (see Appendix 6.4). The percentages of student enrollment and graduates in science and technology were higher than the figure suggested by Frederick H. Harbison: 50% of students were enrolled in the fields of science and technology in developed countries.<sup>34</sup>

In other words, since 1949 the PRC has stressed the training of technical cadres in the areas of science and technology for the improvement of the national economy. Although the ruling elite of the PRC attempted to use higher education to foster economic modernization, the agricultural population

of about 80% (out of the total population) has remained stable in the last forty-four years. The ruling elite of the PRC expected in October 1992 that "socialist modernization" would be achieved by 2050.<sup>35</sup>

### **6.3.1.3 Struggles Over the Relations Between Science and Technology**

Despite the stress on science and technology, the PRC separated science from technology in its higher education system, and this created struggles over the relations between science and technology when the PRC opened up to Western countries from the late 1970s.

Before the early 1980s, education in the natural sciences and technologies was separated within the higher education system of the PRC according to the Soviet model of higher education. Comprehensive universities, as mentioned earlier in this chapter, were responsible for education in the natural sciences, while other institutions of technologies were accountable for education in the applied sciences.

The natural sciences were relatively neglected as compared with the applied sciences in the higher education system of the PRC. The number of comprehensive universities was decreased from 41.7% in 1950 to 12.7% in 1953, then went down to 8.6% in 1978, and slightly increased to 9.5% in 1990 (see Appendix 6.1). The student enrollment in natural sciences within the science and technology sector also remained low: 13.6% in 1949, 9.1% in 1953, 12.2% in 1978, and 9.9% in 1990 (see Appendix 6.3). In 1990, the State Education Commission announced that no new comprehensive universities would be established between 1991 and 1995.<sup>36</sup>

In contrast, engineering education was stressed within the science and technology sector. The percentage of institutes for engineering education was increased from 22.5% in 1950 to 54.2% in 1990. The percentage of students of engineering was also increased from 45.7% in 1949 to 63.4% in 1990. Within engineering education, mechanical engineering, and civil engineering and architecture were emphasized.<sup>37</sup> Their percentages were respectively 20.65 and 23.64 in 1953; 29.47 and 10.26 in 1978; 24.34 and 16.60 in 1990. Radio and electronics has been a newly rising field of study since the 1970s. The percentage of student enrollment in this new field was 6.1 in 1965, 20.51 in 1970, 18.74 in 1978, and 19.83 in 1990.<sup>38</sup>

However, the separation of science and technology in the higher education of the PRC was first challenged at the beginning of the Sino-Soviet split in the late 1950s. The PRC recognized the limitations of the tripartite higher education system in the transfer of research results into technologies in the late 1950s. Four universities of science and technology were established from 1958 to bridge the gap between natural sciences and technology, and were jointly supervised by the Chinese Academy of Sciences and Ministry of Education.<sup>39</sup> The Chinese University of Science and Technology in Hefei offered courses like nuclear engineering, technical physics, applied geophysics, radio electronics, thermal dynamic engineering, high polymer chemistry and physics, applied mathematics and computing technique, and automation.<sup>40</sup> Despite the attempt to bridge natural sciences and technology, the PRC authorities did not pay much attention to these institutions in the 1960s and 1970s.

Conspicuous re-integration of science and technology education took place only after the PRC was opened up in the late 1970s to Western countries which emphasized interdisciplinary studies between natural sciences, applied sciences and technology.

Some famous comprehensive universities re-introduced applied sciences and social sciences into their institutions from the early 1980s. Some top administrators of comprehensive universities expressed the view that in addition to natural sciences, humanities and social sciences, their institutions should begin to set up other fields of study such as technology and management. They argued that comprehensive universities could provide better theoretical foundations for technologies, and different kinds of specialists for the development of inter-disciplinary studies and applied research.<sup>41</sup> Fudan University established the Institute of Technology in 1984.<sup>42</sup> One year later, Beijing University established the Institute of Economics (comprising economics, economic management, and international economics), and some departments of applied sciences such as environmental science, sociology, and national economic and management.<sup>43</sup> Many interdisciplinary studies were also established in comprehensive universities. Take the Nankai University as an example. Between the early 1980s and 1992, this university introduced 13 new fields of study like electronic technology, biochemistry, biophysics and economic information management.<sup>44</sup>

Institutes of technology in the PRC also re-introduced fundamental sciences and humanities into their institutions from the middle of the 1980s. For instance, in 1987, the Qinghua University and Huazhong Institute of



Engineering incorporated natural sciences and humanities into their curriculum.<sup>45</sup> In 1992, the Nánjīng University established institutes of humanities, sciences, geology, technological science, and life sciences.<sup>46</sup>

The integration of science and technology education within individual higher education institutions in the PRC indicated its gradual shift from the Soviet model of the tripartite system to Western models. The higher education system of the PRC also changed the relations of higher education with research when it was opened up to Western science and technology from the late 1970s. This will be examined in the next section.

#### **6.3.1.4 Struggles Over Relations Between Higher Education and Research**

This thesis argues that the institutionalization of research in the higher education system of the PRC developed mainly after it was opened up to Western countries in the late 1970s.

Before the late 1970s, "university-based research"<sup>47</sup> was de-emphasized in the higher education system of the PRC, and most research activities were conducted outside the higher education sector. There were three types of institutions which would conduct research programmes: higher education, the Chinese Academy of Sciences, and research institutes under related ministries at various levels.

In the early 1950s, the PRC transferred research capacities from the higher education sector to the Chinese Academy of Sciences which was supposed to "direct and promote" science development.<sup>48</sup> The Academy was first subordinated to the Ministry of Education, but was later raised to the

ministerial level. In 1949, fourteen institutes of science and technology were moved from the higher education sector into the Chinese Academy of Sciences. The number of institutes under the aegis of the Academy was increased to 106 by 1956, but reduced to 73 in 1973 because of the Cultural Revolution. In the early 1980s, the number increased to 120.<sup>49</sup>

Both human and financial resources were also transferred from the higher education sector to the Academy before the late 1970s. Many senior and experienced scientists and researchers of the Academy were retrieved from the higher education sector. Before 1963, no government fund was available for research and development in higher education institutions. In contrast, the Academy received per capita research funds of 9,000 yuan in 1956. Although the government allocated research funds for science and technology in higher education from 1963, the amount was small and unstable as compared with the Academy.<sup>50</sup>

Moreover, most research was conducted outside the higher education sector. A large proportion of basic research projects was taken up by the institutes of the Academy, and many of these projects (about 60%) were for the central government and industrial enterprises.<sup>51</sup> Applied research was also dominated by research institutes under related ministries at various levels. Many research projects were taken up by these institutes which were designed for a particular branch of industry and directly linked to some key enterprises. There were reportedly 415 such institutes with 14,700 researchers and technical staff in 1958.<sup>52</sup>

As a result, higher education in the PRC had a weak research

infrastructure prior to the late 1970s. In 1982, a member of the ruling elite of the PRC, Niè Róngzhēn, admitted that the responsibility of turning science and technology into productive forces was shared unequally among higher education institutions, the Academy, and research institutes under related ministries.<sup>53</sup> Among them, higher education institutions were, according to Tony Saich, the "weakest" in the contribution to research of science and technology.<sup>54</sup>

Claims from sections of the ruling elite of the PRC for the institutionalization of research in its higher education were heard in the late 1970s. In January 1978, the *Beijing authorities* suggested that the tasks of science and technology research should be shared among higher education institutions, the Chinese Academy of Sciences, and other state research institutes: higher education should emphasize both basic and applied research; the Chinese Academy of Sciences basic and theoretical research; and other research institutes applied sciences and technological studies.<sup>55</sup> The message about the division of labour between scientific and technological research was echoed at the National Science Conference in March 1978.<sup>56</sup> The Chinese Academy of Sciences was later asked by the PRC authorities to emphasize applied research as well in 1985. Moreover, research institutes including those of higher learning were encouraged to set up various forms of partnerships with enterprises and designing units on a mutually beneficial basis.<sup>57</sup> Graduate research work within the higher education system began with the re-introduction of graduate programmes in 1977. The priorities of research were determined jointly by universities and the Chinese Academy of Sciences.<sup>58</sup>

University academics of the PRC also argued for the incorporation of research into higher education. Lǐ Ēnjīng called for the re-emphasis on basic and applied research in higher education, firstly, because national construction demanded higher education to produce knowledge and creativity, and to foster experts and economic achievements; secondly, because scientific and technological research would enhance, in terms of content, the quality of teaching; and thirdly because higher education had a manpower for science and technology, and more fields for inter-disciplinary research than other research institutes.<sup>59</sup> The President of the Jílín University, Táng Áoqīng, indicated that in 1985, 300,000 teachers and eighty percent of graduates students were enrolled in higher education institutes.<sup>60</sup>

However, the introduction of research to the higher education system of the PRC faced structural constraints in the early 1980s. According to Leo A. Orleans, these constraints were: overspecialization in curriculum, minimal research funds and facilities, lack of formal graduate education before the early 1980s, and an over-emphasis on the role of the Chinese Academy of Sciences as a central scientific and technological research organ.<sup>61</sup> Zhāng Dìng suggested that the low mobilization of research staff between higher education institutes, and the difficulty in introducing inter-disciplinary science and technology studies were also constraints on the promotion of research in higher education of the PRC.<sup>62</sup>

Despite these difficulties, the PRC began to emphasize the research functions of higher education in the 1980s. Up to 1988, there were 1,715 research units (801 research institutes and 914 research divisions) established

in the higher education system of the PRC. In terms of the fields of study, 15.7% of these research units were for natural sciences, 42% for engineering and technology, 13.1% for agriculture, 25.9% for medical science, and 3.3% for integrative research.<sup>63</sup> Moreover, the PRC stressed the training of postgraduate students at home in the early 1980s. In 1991, 411 higher education institutes offered courses for 80,500 postgraduates.<sup>64</sup> The proportion of contribution of higher education institutions for science and technology research at the national and local levels was increasing. For instance, the percentage of research projects in Shanghai taken up by its 50 universities was increased from 23.2 in 1988 to 39.4 in 1991.<sup>65</sup> Thus research is increasingly institutionalized in the current higher education system of the PRC in the style of Western countries (as discussed in Chapter One).

To sum up, the higher education system of the PRC was twice reorganized for the production of scientists and technologists. However, these two reorganizations differed from each other. The first reorganization in the early 1950s emphasized the separation of science and technology, and thereby weakened the research capacities of higher education. The second reorganization in the 1980s stressed the integration between science and technology, and also between research and higher education.

In contrast to the PRC which rejected the pre-1949 Republican model of higher education, the ruling elites of the ROC transplanted the pre-1949 Republican higher education system to Taiwan. This will be discussed in the next section.

### **6.3.2 Institutional Reorganization in the ROC**

This section describes the institutional reorganization in the higher education system of the ROC. This thesis argues that the ROC, despite the infrastructural legacy from its predecessor, transplanted the pre-1949 Republican model of higher education from mainland China to Taiwan for the production of technical cadres. However, the higher education system of the ROC did not give any preferences to the development of science and technology education before the 1970s, but was adjusted later because of the increasing demands of the industrializing economy. In contrast to the PRC, the ROC institutionalized research in its higher education system early in the 1950s.

#### **6.3.2.1 Basic Re-organization**

The higher education system of the ROC was moved from mainland China to Taiwan in 1949, and built upon the infrastructures left by the Japanese colonial administration in 1945. The ROC government started its higher education system with the four institutions left by Japan in 1945. Each of them was specialized in certain areas of science and technology: the National Taiwan University (which was previously called the Taihoku Imperial University) for training a variety of scientists and technologists; Provincial Taiwan College of Technology for training engineers; Taiwan College of Agriculture for the studies of farming and forestry; and Provincial Taiwan Normal College for teacher training.

The ROC government also made use of the teaching personnel and

material resources (such as books, equipment and facility) which moved together with the CNP to Taiwan in 1949 to improve the "quality" of its higher education.<sup>66</sup> Seven mainland universities were also allowed to be re-established in Taiwan. Among them, the National Tsinghua University was designated specifically for recruiting science and technology personnel, particularly for nuclear engineering.<sup>67</sup>

The basic institutional structure of the higher education system in Taiwan was governed by the University Act adopted in mainland China in 1948. Despite several revisions of the Act after 1949,<sup>68</sup> education in science and technology was developed within the higher education system which was inherited from pre-1949 Republican China, and which followed the American model of 1922.<sup>69</sup> This means that science and technology were not separated within individual higher education institutions in the ROC as in the PRC before the late 1970s. Many universities offered courses on both science and technology as early as the 1950s and 1960s. Noted examples were the National Taiwan University and Tsinghua University.

#### **6.3.2.2 Gradual Development of Science and Technology Education**

This thesis argues that the development of science and technology education at the tertiary level in the ROC was gradually adjusted in accordance with the development of the economy which moved from agricultural to capital- and technology-intensive industry. This was indicated by the lack of planning in the 1950s, the student enrollment in science and technology, the trends of majors taken by students, and the establishment of public and private

institutes for science and technology in the last two decades.

Although the ROC practised a planned economy and its ruling elite frequently stressed the importance of science and technology for economic modernization, the government had no plan for developing science and technology education before the middle of the 1960s. It has been mentioned in Chapter Five that the government also had no blueprint for utilizing science and technology for improving the national economy until the late 1960s. Manpower planning was first introduced in the Fourth Four-Year Plan (1965-1968). An education plan, "A Preliminary Draft of the Long-range Educational Plan, 1964-1982," was drafted by the Ministry of Education with the help of the United Nations in 1964. The first manpower development plan occurred in 1966. These plans attempted to emphasize the development of science and technology education for the industrializing economy in Taiwan. In 1967, the ROC government began to stress basic science education at the tertiary level, together with the development of vocational training in secondary schools.<sup>70</sup>

Moreover, in the 1950s and 1960s, the structure of higher education of the ROC was biased towards humanities and social sciences. The Ministry of Education of the ROC had been reminded by the 1962 Stanford Report of the imbalance in manpower training in Taiwan. The Report suggested that in the 1960s there would be a surplus of graduates from the humanities and social sciences, but a shortage of graduates from science and technology.<sup>71, 72</sup>

As a result of the bias towards the humanities and social sciences, higher education in the ROC did not meet the increasing manpower demands of its industrializing economy in the 1970s. The Ministry of Education had



conducted a survey in 1964, and had found out that 70% of 1,238 respondent graduates felt that their study did not match the needs of their current jobs.<sup>73</sup> Later, the Economic Planning Council admitted in the proposal of the Sixth Four-Year Plan (1976-1981) that economic development was hindered by "backwardness in the industrial structure."<sup>74</sup> Hou Chi-ming and Hsu Yu-chu also predicated in 1976 that there was likely to be a shortage of high-level manpower such as doctors, scientists, engineers, and of subprofessional manpower, like technicians and nurses.<sup>75</sup> In 1991, the Economic Planning Council expected that the demand for personnel of science and technology in Taiwan would be increased from 142,065 in 1989 to 287,265 in 2000; i.e. an annual increase of 6.6% in this decade.<sup>76</sup>

From the 1970s, the structure of higher education in the ROC was adjusted to produce more scientists and engineers to meet the industrializing needs. The percentage of students enrolled in science and technology (out of all fields of study) increased slowly between the 1960s and the early 1990s. But the figure was still below 50% (the approximate figure in developed countries): 45.5% (including junior college students) in 1960;<sup>77</sup> 40.7% in 1968; 38.1% in 1975; and 42.7% in 1990 (see Appendix 6.5). In 1992, this percentage was slightly increased to 46.1.<sup>78</sup> The percentage of graduates of science and technology was 43.9 (including junior college students) in 1960, 42.2 in 1965, and 46.6 in 1989 (see Appendix 6.6).

The trend of the choice of major subjects taken by ROC students also indicated the shift of education towards science and technology in accordance with gradual and progressive economic developments in Taiwan. Within the

science and technology sector, engineering consistently had the largest student population in the last four decades. The percentage of engineering graduates was 21.7 in 1961; 15.3 in 1968; 20.5 in 1980; and 19.7 in 1990 (see Appendix 6.6). Agriculture was ranked second after engineering before the middle of the 1960s. When the ROC began industrializing in the late 1960s, the percentage of graduates of agriculture dropped: 9.3 (including junior college students) in 1961; 7.2 in 1968; 3.3 in 1980; and 3.1 in 1990. In contrast, new fields of study in the developing technological field became prominent in the higher education system of the ROC in the 1980s. The percentage of graduates in mathematics and computer science, was 6.4 in 1985 and 7.1 in 1990.

To speed up the production of more scientists and engineers, the ROC established institutes of technology from the middle 1970s. In 1974, the National Taiwan Institute of Technology was set up to recruit technicians and engineers to enhance the speed of the development of heavy and sophisticated industries.<sup>79</sup> This institute offered 2-year and 4-year courses including electronic engineering, industrial management technology, and mechanical engineering.<sup>80</sup> In 1993, the National Huádōng University was established to meet the local industrializing demands and to improve the quality of local manpower in eastern Taiwan<sup>81</sup> which had only 4% of all higher education institutions in the whole island.<sup>82</sup>

The ROC government also utilized private resources to supply technical cadres to the industrializing economy in Taiwan. Between 1982-1987, the private sector contributed 54.8% (64,980) graduates out of the total population of science and technology graduates (118,585).<sup>83</sup> Five private institutes of

technology were established between 1989 and 1990.<sup>84</sup>

Therefore, the higher education system of the ROC was adjusted in accordance with the change of economic structure from the agricultural to the industrial mode in the last forty-four years. The relations between higher education and research also reflect this trend.

### **6.3.2.3 Relations Between Higher Education and Research**

This section describes the relations of higher education with research in the ROC. This thesis argues that in the ROC institutionalized research in higher education since the early 1950s, and the focus of research shifted in accordance with economic development trends.

In the ROC, research has been shared among four types of institutions: higher education institutions (including their graduate schools, departments, and research centres) and the Academia Sinica which are responsible for theoretical and pioneering applied research; and research institutes under different ministries or run by the private sector which are responsible for applied research and innovation.

In the 1950s and 1960s, the research projects of higher education were mostly related to low-level technology. Between 1959 and 1967, the National Council of Science Development (later called the National Science Council) allocated US\$ 12.16 million to universities and research institutes to develop science and technology.<sup>85</sup> The distribution of this fund was: 45% of its funds for engineering and physical sciences; 35% for agricultural and medical sciences; and 20% of humanities and social sciences.<sup>86</sup> In particular, the

colleges of agriculture served the dual function of teaching and research, but did not provide an extension service as did American land-grant colleges.<sup>87</sup>

In the 1970s, the ROC began to develop high technology, and increase its capacities of research and development. The Institute of Industrial Technology was established in 1973 to integrate scientific research with economic construction. The site of the Institute was intentionally chosen to be in Hsinchu so that the Institute could access the research personnel and equipment of the National Tsinghua University and National Chiao Tung University.<sup>88</sup> In December 1980, the Hsinchu Science-Based Industrial Park was established in the same area so as to link higher education, research institutes and industry.<sup>89</sup>

In the 1980s, the ROC could not afford "personal interest-based research" and began to develop problem-oriented research projects.<sup>90</sup> Between 1986 and 1990, the government spent NT\$ 7.4 billion on academic research. Of this sum, 36.1% was allocated for biological and physical sciences, 32.2% for applied sciences and engineering, 23.3% for natural sciences, 6.0% for social sciences and humanities, and 2.4% for science education. For theoretical and pioneering applied research in 1989, higher education received NT\$ 1.637 billion for 3,160 research projects; 10 research centres within universities were allocated NT\$ 323 million for 274 projects; and Academia Sinica got NT\$ 732 million for 251 research projects.<sup>91</sup>

Research activities in the higher education system of the ROC were intervarsity. In 1973, there were 6 research centres under the National Science Council for mathematics, physics, chemistry, biology, engineering, and

agriculture. Each research centre was composed of two or three research institutes of universities, with one of them as the host organization, and the others as supporting (see Appendix 6.7).<sup>92</sup> In the 1950s and 1960s, these research centres were sponsored by American organizations such as the Sino-American Council for International Economic Cooperation and Development and the Joint Commission of Rural Reconstruction.

The research of higher education was also linked with other ministries or their agencies. An example was the establishment of two research institutes in universities to produce researchers and to conduct research activities for the Ministry of National Defence. These two institutes are the Institute of Applied Mathematics in the National Taiwan University, and the Institute of Aeronautics and Space in the National Chengkung University. Graduates of these two institutes were recruited to conduct further research in the Chung Shan Institute of Science which was under the direct administration of the Ministry of National Defence, or in state or private enterprises which had contracts with the Ministry of National Defence.<sup>93</sup> Another example was the joint research in geological studies by the Institute of Geology of the National Taiwan University, the Department of Geological Science of the National Cheng Kung University, the Taiwan Provincial Institute of Geological Survey and the Chinese Petroleum Company.<sup>94</sup>

Thus, the PRC and ROC adjusted their higher education structures in the development of science and technology education for different economic purposes. Higher education was used to quicken the emergence of economic modernization in the PRC, and to sustain the industrializing economy in the

ROC.

#### **6.4 CURRICULUM CHANGE IN HIGHER EDUCATION IN THE PRC AND ROC**

This section describes foreign influences on the curriculum of science and technology education in the higher education systems of the PRC and ROC. This thesis argues that these two Chinese higher education systems adjusted their curricula – the scope of curriculum, foreign language policy, and the use of teaching materials written by foreigners – so as to import foreign science and technology.

##### **6.4.1 Curricular Change in the PRC**

In the PRC, the curriculum in the areas of science and technology was changed when the PRC shifted its international political and economic relations from the USSR to Western countries in the 1970s.

In the founding period of the PRC, the curriculum of higher education was marked by a Soviet characteristic -- course specialization. The curriculum of science and technology (and other fields of study) was modelled upon Soviet higher education, and the number of specialties was drastically multiplied to fulfill the specialization plans suggested by Soviet advisors.<sup>95</sup> In the fields of science and technology, there were 179 different specialties. They included narrowly specialized courses such as the geophysical exploration of metals and non-metals, mining and industrial structure, prime mover installation in ships, operation and repair of automobiles, electric measuring equipment, and dock crane and equipment.<sup>96</sup> The numbers of

specialties and sub-specialties were respectively 449 and 2,427 in 1962; 634 and 3,855 in 1978; 584 and 5,825 in 1985; and 841 and 7,167 in 1990.<sup>97</sup> Despite occasional reduction in specialties, the higher education system of the PRC was still marked by specialization in the 1980s and the early 1990s even though Soviet higher education greatly reduced the number of specialties in the same period.<sup>98</sup> However, the specialties in the PRC from the late 1970s included disciplines imported from Western countries such as bio-medical technology, information sciences, optical fibre communications, and environmental medical sciences.<sup>99</sup>

The foreign language policy in the higher education system of the PRC was changed when it switched the importation of science and technology from the USSR to Western countries. In order to access the information of foreign science and technology in periodicals and research materials, the PRC students had to master the language of countries which provided the literature. During the Sino-Soviet alliance period in the 1950s, English was downplayed because it was perceived to be associated with imperialism. In contrast, Russian was adopted by the Ministry of Education as the key language to access Soviet science and technology (and culture).<sup>100</sup> A two-week barely adequate intensive course on Russian was devised for students and scientists to enable them to read science papers in that language.<sup>101</sup>

However, from the late 1970s, the PRC educational authorities de-emphasized Russian, and reinstated English as a popular foreign language to access Western knowledge of science and technology. At the initial stage of opening up to Western countries, the demand for foreign language teachers

was higher than that for science and technology experts in the PRC. In the academic year 1985-86, the higher education institutions of the PRC recruited 1,479 foreign teachers: 1,289 as language teachers; 82 as science and technology teachers; and 108 in the humanities and social sciences. Most of these foreign language teachers taught Western languages: 854 taught English; 75 French; and 80 German. However, Japanese was the second favorite language, and 153 foreign language teachers were invited to teach Japanese.<sup>102</sup> The demand for foreign language teachers increased in the late 1980s. A total of 2,002 language experts were recruited from 29 countries in 1988.<sup>103</sup> In particular, joint programmes between PRC institutions and Western counterparts for teaching PRC students English were a characteristic of this new foreign language policy. For instance, Yale University provided native English speakers to Hunan Medical College for teaching Chinese students English, and helping Chinese students and teachers to learn about "contemporary American science and culture."<sup>104</sup>

A less direct way to access foreign science and technology was to translate the literature into Chinese. In 1955, 620 Russian textbooks were translated into Chinese. Up to 1957, there were 1,090 textbooks either translated from Russian or written by Chinese but based on Russian teaching materials.<sup>105</sup> Russian statistics recorded that 3,000 titles of Soviet technical textbooks were in circulation with more than 20 million copies in the PRC between 1949-1955.<sup>106</sup> However, the opening up of the PRC to Western countries reversed the type of translated material from Russian texts to English ones.



#### **6.4.2 Curricular Change in the ROC**

Initially, the curriculum of science and technology in the higher education system of the ROC, unlike the PRC, was broadly classified. Before 1954, there were only 25 departments of science and technology in the four higher education institutions. Interdisciplinary courses were mostly found in the field of agriculture; they were agricultural engineering, agro-biology, agro-chemistry, and agro-economics.<sup>107</sup> Courses of science and technology were gradually diversified from the 1960s. In the 1980s, new disciplines, particularly from Western countries, were introduced into the curriculum of science and technology in the higher education system of the ROC. Between 1982 and 1988, 18 higher education institutions produced graduates of 28 new disciplines of science and technology (see Appendix 6.8).

These new courses reflected Western influences on domestic science and technology education in the ROC. Courses like information science and management were incorporated as part of the curriculum of mathematics and computer science. Most of the new courses like Civil and Irrigations Engineering were interdisciplinary. Some courses like Environmental Science concerning global issues of protection of the Earth were established in the higher education of the ROC as in Western countries.

Moreover, national and private institutions bore equal responsibility to introduce new science and technology courses. Between 1982 and 1988, 18 institutions had their first graduates of these 28 new courses. Half of these institutions were private, and responsible for half of the new disciplines (14). New courses were usually introduced at the higher degree level. Among the

28 courses, only 12 courses were for undergraduates.

The Taipei authorities consistently adopted English as an essential foreign language to access Western science and technology. English was a compulsory subject carrying 8 units for all undergraduates before 1993.<sup>108</sup> From this year onwards, students would have more choices for the compulsory foreign language course. The choices would include English, Japanese, French, German, Spanish, and Russian.<sup>109</sup> For graduate studies in the ROC before 1993, students were obliged by the Ministry of Education to pass English in admission examinations. From 1993, individual graduate institutions can determine whether to set English proficiency as an admissions criterion.<sup>110</sup>

To reduce the language barrier against the access to Western science and technology, the ROC translated many English textbooks of science and technology into Chinese. Between 1955 and 1960, the Ministry of Education provided 175 translated Western textbooks of science and technology for undergraduate courses.<sup>111</sup> Western scientific works were also translated in the US for the ROC's domestic use. Under the sponsorship of the Shu Foundation established by a Chinese entrepreneur, five millions words of English texts were translated into Chinese by more than 20 scholars between 1965 and 1967.<sup>112</sup>

Therefore, the higher education systems of both the PRC and ROC adopted foreign curriculum resources and a foreign language policy to enable students access foreign science and technology. The emphases of the imported curriculum and foreign language policy over specific periods reflected the

influences of international political and economic relations on the development of education in science and technology in these two Chinese higher education systems. The next section will further illustrate how the international political and economic relations of the PRC and ROC influenced their international education relations.

## **6.5 EXCHANGE OF TEACHING PERSONNEL AND THE SENDING OF STUDENTS ABROAD BY THE PRC AND ROC**

This section identifies the countries to which the PRC and ROC sent their students and teachers to receive foreign training in science and technology between 1949 and 1993, and from which these two Chinese governments would recruit foreign experts. This section also describes the subjects which the students of both Chinese countries studied abroad.

This thesis argues that despite the serious brain drain, the PRC and ROC utilized the sending of teaching personnel and students abroad as a means to access foreign science and technology. The countries to which the PRC and ROC sent their students and teaching personnel depended on their international political and economic relations with these countries.

### **6.5.1 International Educational Relations of the PRC**

In the PRC, the practice and development of sending teachers and students abroad in the pursuit of foreign science and technology, it is suggested in this thesis, can be divided into three periods according to the PRC's international political and economic relations: reliance on the former USSR (1950-1960), diversification (1961-1966), and reliance on Western countries (from 1972

onwards).

During the period of 1950-1960, the PRC sent its students to receive training in science and technology in socialist countries. In this period, 88.3% of PRC students (total 9,298) went to the former USSR, and the rest mostly to other socialist countries (see Appendix 6.9). Most of these students were undergraduates.<sup>113</sup>

Because of the Sino-Soviet split in 1960, the PRC reduced the number of students sent to the former USSR and diversified the sending of students into different countries between 1961 and 1966. The distribution of 1,374 students on a government-sponsored basis was: 206 (15.0%) in the former USSR, 158 in Cuba; and 1,010 in other countries. In this period, the USSR still ranked first in the list of target countries for PRC students. The Beijing authorities suspended sending students to the USSR between 1966 and 1982. However, this did not mean the PRC would send its students to Western countries immediately after the Sino-Soviet split. No student was sent to the US, West Germany, France and Canada; and only 1 went to the United Kingdom between 1961 and 1966.

From the late 1970s, the PRC began to resume the practice of the late Qing government and pre-1949 Republican government: sending students to Western countries to access their science and technology. In 1980, the Ministry of Education stipulated that priority would be given to students who would take up abroad those subjects helping improve scientific and technological capacities, and the teaching quality of higher education at home. However, included in this new policy was an ideological requirement: successful

applicants should "support the party line, ardently love the motherland, be dedicated to the revolutionary cause."<sup>114</sup> In 1987, the PRC spelt out that the ideological requirement applied only to government-funded students.<sup>115</sup>

Among Western countries, the US was the first choice of many PRC students.<sup>116</sup> Between 1972 and 1983, 13,889 PRC students went for advanced studies mostly in Western countries: 32.1% to the US; 14.5% to Japan; 10.7% to (the former) West Germany; 8.9% to the United Kingdom; 8.1% to France; and 7.0% in Canada.<sup>117</sup>

Science and technology were the favorite subjects of PRC students abroad. Between 1972 and 1978, 93.7% of 1,548 government-funded students learned Western languages; whereas 6.3% took science and technology as their majors. After 1978, this trend was reversed. More than 80% of PRC students abroad received science and technology education. For example, between 1978 and 1985, among 29,000 government-funded students (excluding 7,800 self-financed students), most of them took science and technology as their majors: 28.5% in sciences; 39.6% in engineering; 7.7% in agriculture; 11% in medicine; and only 13.1% in humanities.<sup>118</sup>

The Beijing government sent its students and teaching personnel abroad to upgrade their professional qualifications. Between 1978 and 1985, 95.1% (out of 29,000) students sponsored by the government pursued advanced or postgraduate studies; and only 4.1% received undergraduate training.<sup>119</sup> The percentages of visiting scholars for advanced studies, postgraduates, and undergraduates were respectively 82.1 (out of 7,290 students), 8.1, and 9.8 between 1979 and 1981;<sup>120</sup> and 71.1 (out of 7,321 students), 26.7, and 2.2 in

1988.<sup>121</sup> In addition to upgrading their qualifications, the sending of teaching and research personnel abroad by the PRC, this thesis suggests, was a quicker way to absorb foreign science and technology; and to apply what they learnt from Western countries when they returned home.

However, the brain drain from the PRC was very serious. The Beijing authorities admitted that only 45.2% of 36,500 students and visiting scholars sent by the government during the period of 1981-1985 had returned by 1987.<sup>122</sup> The overall brain drain between 1978 and 1992 was greater. The PRC estimated that in this period, only 60,000 (31.6% out of 190,000) students and teaching personnel returned to the PRC.<sup>123</sup> More than 90% of these returnees were sponsored by the government.<sup>124</sup> Despite this serious loss of manpower, the PRC, this thesis suggests, has to continue sending their students abroad to receive foreign training. The PRC estimated that the period between 1993 and 2000 would be the climax of the retirement of those who were trained before the middle of the 1960s.<sup>125</sup> In 1992, there were 2.2 million teachers and researchers in the higher education system of the PRC. Among them, 22.9% were assessed by the Beijing authorities as incompetent because they were trained during the Cultural Revolution. By 2000, 52.3% of these 2.2 million teachers and researchers would be expected to retire; and only 24.8% would remain and would be capable of leading fresh and inexperienced graduates.<sup>126</sup>

In addition to sending teachers and students abroad, the PRC recruited foreign science and technology personnel for the purposes of enhancing the domestic levels of science and technology. Between 1950 and 1952, 126 Soviet

consultants helped Chinese educators develop new specializations, curriculum and teaching in the higher education system of the PRC in line with the specific needs of industry, agriculture and culture.<sup>127</sup> Between 1953 and 1962, 862 foreign experts worked on a long-term contractual basis in higher education institutes of the PRC; 761 of them came from the USSR, and the rest from other socialist (East European and Asian) countries and a few from capitalist nations.<sup>128</sup>

After the restoration of the PRC-US relations in the late 1970s, Western experts were at the top of the invitation lists of the PRC. In 1980, 1,700 foreign scientists were invited by the Chinese Academy of Sciences to teach or give their papers in the PRC. The figure was 50% more than that in 1979.<sup>129</sup> In 1992, 5,000 foreign experts were invited by the higher education institutions in the Húběi Province alone to help train personnel of science and technology, education, foreign affairs, and economics and trade. These institutions expected to recruit experts and specialists in transportation, electricity, car-making, metallurgy, medical sciences, agriculture and natural sciences in 1993.<sup>130</sup>

There were four major reasons, as summed up by Edgar A. Porter, why the PRC invited foreigners in the post-Maoist period: to raise academic standards in science and technology; to use foreign educators as a bridge to foreign university programmes and faculty; to enhance the status of local institutions; and to narrow the gap of science and technology between the PRC and developed countries created by the political turmoil during the Cultural Revolution.<sup>131</sup>

Therefore, the PRC sent students and teachers abroad to receive training in science and technology, and recruited foreign scientists and technologists to train PRC students at home. These foreign countries were those which had international political and economic relations with the PRC. The ROC also developed international scientific and technological relations with its political and economic partners. This will be examined in the next section.

#### **6.5.2 International Educational Relations of the ROC**

Before July 1989, all students of the ROC who aspired to study abroad under government sponsorships or on a self-financed basis must first seek approval from the Ministry of Education. According to the 1972 "Regulation of Studying Abroad," the grant of approval was based on the criterion that the subjects to be taken by the applicants must meet the needs of national construction and long-term science development. All candidates must pass qualifying examinations administered by the Ministry of Education since 1954. Qualifying examinations included general examinations on the "Teachings of Sūn Yixiān," the CNP's version of "Chinese History and Geography," "Chinese Language," and "Foreign Language" of the host country; and advanced examinations on special subjects to be pursued abroad.<sup>132</sup> After 1976, self-supporting applicants were no longer required to take these qualifying examinations.<sup>133</sup>

The majors taken by ROC students abroad reflected the domestic demands in Taiwan. Between 1952 and 1970, there were 12,944 (54.8% out of 22,241) students who took science and technology as their majors. Amongst



the total student population abroad, 5,713 (25.7%) students majored in engineering, 3,805 (17.1%) in natural sciences, and 2,605 (11.7%) in agriculture (see Appendix 6.10). However, the percentage of students taking agriculture dropped to 7.3 between 1980 and 1989. In contrast, the field of mathematics and computer science became prominent among student choices in this period. The percentage of students taking mathematics and computer science increased from 4.1 between 1981-1985 to 6.6 between 1986-1989. The decrease in agricultural studies and the increase of computer studies corresponded to the economic structural change of the ROC from agriculture in 1950s and 1960s to heavy industry and high technology in the 1980s.

Most students opted to go to the US, and some to Japan. In 1955, 195 students (86.6%) out of 225 went to the US; 18 (8%) to Japan; 6 (2.7%) to Canada; 5 (2.2%) to West Germany; and 1 (0.4%) to the Philippines.<sup>134</sup> In 1989, 2,116 students took science and technology studies. Among them 2,009 (94.9%) students went to the US; 41 (1.9%) to Japan; 18 (0.8%) to West Germany; and the rest to other countries in Western Europe and Asia.<sup>135</sup>

The brain drain from the ROC was as serious as in the PRC. Between 1952 and 1960, 4,602 ROC students were sent abroad, but only 417 (9.1%) of them returned.<sup>136</sup> Between 1962 and 1989, 119,929 ROC students studied abroad, but only 20,939 (17.5%) students returned.<sup>137</sup> However, in the early 1990s, more students returned to the ROC from the US. Overall, between 1990 and 1992, 11,284 students returned to the ROC.<sup>138</sup> It was suggested that the ROC students who graduated in the US were finding it difficult to secure jobs in the US because of its high unemployment rate. In contrast, they could find

jobs more easily in the ROC and enjoy a higher salary (on the average, US\$ 500 more) for the same post than in the US.<sup>139</sup>

Moreover, teachers of science and technology in the higher education system of the ROC were sent abroad by the government for advanced studies in order to upgrade their academic qualifications or enhance their exposure to new developments in science and technology. Up to 1989, 3,642 faculty members (of natural sciences and mathematics; engineering and applied sciences; biological, medical and agricultural science; science education; and humanities and social scientists) studied abroad under government sponsorships: 380 between 1960 and 1969; 1,117 between 1970-1979; and 2,145 between 1980-1989.<sup>140</sup> In contrast to the return rate of students, most teachers sent by the government returned to render their services to the ROC; for instance, in the period of 1961-1981, 97.4% of 1,501 government-sponsored teachers reportedly returned.<sup>141</sup>

The ROC also imported foreign science and technology through the recruitment of specialists from developed countries. Since the promulgation of the "Guideline for Long-Range Development of Science" in 1959, overseas scientists and technologists were incorporated into the higher education system of the ROC as special-chair lecturers, as national research professors to guide research work and hold research seminars on a yearly contractual basis; or as visiting professors to give lectures on a short-term basis.<sup>142</sup> The demand for overseas scientists was increased sharply from the 1960s to 1970s; 413 expatriate scientists were employed between 1963 and 1970, and 2,783 between 1971-1980.<sup>143</sup> In 1987, 399 foreign experts were invited to teach or supervise

research work in higher education institutions of the ROC.<sup>144</sup>

The governments of the PRC and ROC have practised the policy of human technology transfer for more than four decades by sponsoring students to receive science and technology education abroad, by selecting teaching faculty members for overseas study to upgrade their professional capacity, and by inviting foreign experts to teach or conduct research at home. The PRC and ROC also attempted to increase the research capacities of their higher education systems through joint programmes with foreign institutions. This will be examined in the next section.

## **6.6 INTERNATIONAL COOPERATION IN THE PRC AND ROC**

This section describes the international joint programmes of the PRC and ROC with other countries. This thesis argues that the PRC and ROC utilized international joint programmes conducted at home to increase their research capacities. Through joint programmes, particularly relating to research, local staff or students worked with or under the guidance of foreign specialists. In these cooperation projects, it was expected that physical facilities and equipment, design of experiments, and research capacity of the science and technology workers in the PRC and ROC would be improved.

### **6.6.1 International Programmes in the PRC**

Except during the Cultural Revolution, the PRC has developed relations with foreign countries through joint programmes since 1949.

During the Sino-Soviet alliance period in the 1950s, Soviet advisors

guided the readjustment of faculties and institutes, helped develop research institutes and create specialized studies which emphasized engineering education.

After 1978, Sino-Soviet cooperation programmes were replaced by those between the PRC and US. During the visit to the US, Dèng Xiǎopíng signed an agreement with President Jimmy Carter on cooperation in science and technology in January 1979. Fields such as agriculture, energy, space, health, environment, earth science, and engineering were suggested for educational and scholarly exchange between the PRC and US.<sup>145</sup> Since the agreement, the PRC has established vital links with Western universities.

Three significant changes concerning the importation of foreign science and technology, this thesis suggests, took place in the higher education system of the PRC after its opening up to Western countries. These changes involved the joint programmes between PRC's institutions and their foreign counterparts; the involvement of international organizations; and the participation of overseas Chinese scholars in developing science and technology in the PRC.

At the inter-institutional level, joint programmes have been conducted between the PRC institutions and Western counterparts since 1978. Between 1978 and 1985, 151 Chinese universities and colleges established relations with 320 foreign higher education institutes of more than 22 countries. The joint activities involved the exchange of scholars and students, the exchange of delegations and visiting groups, the conduct of collaborative research, and the provision of short-term training courses.<sup>146</sup>

These inter-institutional activities were channels for the PRC to access Western science and technology and to learn related skills. For instance, the Institute of Nuclear Technology of the Qīnghuá University cooperated with the German Federation of Electric Stations to build a small-scale thermal reactor at the University. The German counterpart promised to invest 55 million Deutsche Mark on the project according to the contract signed on 23 December, 1988.<sup>147</sup>

Moreover, international organizations contributed to enhancing the research capacity of higher education institutes in the PRC. The World Bank has played an important role in the improvement of science and technology education of the PRC since 1980. Five priority sectors of the PRC were designated by the specialists of the World Bank: human resources, agriculture, transportation, energy, and industry.<sup>148</sup> Two major projects were launched. The first one was to improve the quality of graduates and research capability of teaching staff of 28 higher education institutes under the Ministry of Education.<sup>149</sup> The second Development Project aimed at the rectification of unbalanced undergraduate enrollment which emphasized engineering. The total cost for the whole project was estimated to be US\$ 1,457 million.<sup>150</sup>

Another type of World Bank project concerned agricultural education and research in the PRC. Eleven key agricultural universities and six agricultural research institutes were involved. An institute for rice research was established under this project.<sup>151</sup> In 1990, a joint programme to train personnel in information technology and management at the Chinese University of Hong Kong was co-sponsored by the United Nations and the

Shun Hing Education Charity Fund of Hong Kong. In 1991, 25 people from 20 provinces of the PRC were sent to the Chinese University of Hong Kong to receive a module of training in areas such as macroeconomic analysis, economic planning, information systems, and economic management.<sup>152</sup>

The involvement of overseas Chinese scientists in universities of the PRC has become an important part of its science and technology exchange activities since the late 1970s. A joint research project on water pollution control was conducted under the guidance of Zheng Weiming of the Qīnghuá University and Kan Chen of the University of Michigan in the early 1980s.<sup>153</sup> In 1987, the Nobel-Prize Chinese Physicist, Yáng Zhènníng, led a four-year basic research team of Chinese mathematicians and physicists from the Běijīng University, Fùdàn University, Chinese University of Science and Technology, Xīběi University, and Nánkāi University. In contrast to other local science and technology research units, this project under Yáng received a vast fund amounting to 450,000 yuan from the PRC government.<sup>154</sup> Other Nobel-Prize Chinese scientists were also invited to visit the PRC. The famous Chinese mathematician, Chèn Xǐngshēn, from the US was appointed to be the director of the Institute of Mathematics in the Nánkāi University in the early 1990s.<sup>155</sup>

### **6.6.2 International Programmes in the ROC**

In contrast to the PRC, the ROC developed international cooperation programmes with Western countries at a much earlier stage than the PRC did. The industrial base of higher education in the ROC was gradually built up through opening up to international cooperation with the West, particularly

the US, between 1950 and the early 1960s. An American science and technology team was sent by President Johnson in September 1967. The team comprised experienced American scientists and was headed by Donald F. Hornig, a senior science advisor to the American President.<sup>156</sup> The team helped the scientists and officials of the ROC develop graduate programmes and intensify research capacity so as to curb the brain drain.

Moreover, educational contracts were signed between selected higher education institutes of the ROC and foreign counterparts, with mediators such as the Council of Mutual Security Mission and the Joint Commission on Rural Reconstruction. Common to international higher education cooperation was the improvement of curriculum, pedagogy, and physical facilities of selected higher education institutes in the ROC.

In the 1950s and 1960s, some fields of study strategically useful for economic construction were selectively chosen for the joint programmes between key higher education institutions of the ROC and foreign counterparts (see Appendix 6.11).<sup>157</sup> These fields were to include teacher education, engineering education, agricultural education, and atomic energy research.

The first strategic field was teacher education. The contract between the Provincial Taiwan Normal University (PTNU) and the Pennsylvania State University (PSU) in 1953 involved the establishment of the Department of Industrial Education at the PTNU for prospective teachers of vocational industrial shop courses. The courses were intended to supply skilled technicians for the ROC's growing industries. Two advisors, on average within the contract period from the PSU, helped the Department to prepare

workshop curriculum and outlines, and to select books on vocational education to be translated into Chinese. The second contract was made in 1956 to develop the curriculum and physical facilities of the existing Department of Home Economics.<sup>158</sup> The PTNU was also helped by UNESCO to establish the first National Educational Materials Centre in 1955.

Engineering education was another important focus of the international cooperation projects in the ROC. The contract between the Provincial Cheng Kung University (PCKU) and the Purdue University was two-fold. The immediate need for the PCKU in the 1950s was to improve the teaching facilities and physical plant for engineering education in the PCKU. The far-reaching goal was to help the ROC industry through the improvement of engineering education.<sup>159</sup> Purdue advisors to the PCKU made a comprehensive survey of PCKU ranging from its administrative structure, recruitment and training of teaching staff, curriculum, laboratory equipment, and classroom activities.<sup>160</sup> By the end of 1957, twenty-two PCKU lecturers were sent to receive advanced engineering training at the Purdue University, and fifteen different kinds of educational specialists from the Purdue University worked at the PCKU.<sup>161</sup>

Agricultural education of the ROC was the third dimension to be strengthened in the higher education system of the ROC through several important international contacts mediated by the Sino-American Joint Commission on Rural Reconstruction (JCRR). Between 1954 and 1957, the University of California provided advice and assistance to the College of Agriculture, National Taiwan University. Five advisers from the University



of California assisted the ROC counterparts to install agricultural facilities and to provide services in Taiwan, and conducted personnel training and research work in the National Taiwan University.<sup>162</sup> Another college, the Provincial Taiwan College of Agriculture was first helped in 1955 by the International Cooperation Administration in the training of teachers for vocational agricultural schools in the ROC, and in 1960 by the Michigan State University in the design of programmes for specialized agricultural personnel.<sup>163</sup> Between 1953 and 1978, 6,162 agricultural technicians were trained locally, and another 1,341 technicians were sent abroad to receive further training. Among them, 883 people went to the US or Japan. In the same period, 226 foreign consultants came to the ROC to give advice or seminars. Among them, 50% came from the US and 35% from Japan.<sup>164</sup>

The ROC government also actively participated in international cooperation projects on agricultural education. A seed research programme was initiated by the JCRR to link the National Taiwan University (NTU) with the State Department of Agriculture and Forestry in 1956 for the establishment of a research centre and laboratories, and for training seed workers. Another joint program in 1972 was to improve aquaculture under the cooperation among the JCRR, the NTU, the National Taiwan Normal University (formerly PTNU), the Institute of Fishery Biology and the Institute of Biology.<sup>165</sup>

Atomic energy research was the fourth area to be improved in the higher education system of the ROC. Cooperative atomic research for peaceful purposes was conducted under the joint programme between the National Tsinghua University of the ROC and the National Argonne Laboratory of the

US. The American counterpart provided equipment, literature, and scientists for the research conducted in the National Tsinghua University.<sup>166</sup> Further cooperation between these two institutions was encouraged by Wang Shih-chieh, the President of the Academia Sinica.<sup>167</sup>

Inter-institutional cooperation also involved the highest research institution, Academia Sinica, in the ROC. In January 1969, the National Science Council of the ROC, after three meetings with Dr. Walter Hodge, a representative of the National Science Foundation in the US, drafted plans to further Sino-American science cooperation. The scope of cooperation was quite extensive and covered five major areas: natural sciences and mathematics; engineering sciences and technology; biological, medical and agricultural sciences; social sciences; and education. Cooperation activities included seminars, research and exchange of personnel for observation, training workshops, and lectures.<sup>168</sup> The cooperation plans expected ten to twelve American scientists per year to visit Taiwan for a period of 6 months. They were expected to provide leadership for advanced research in six research centres under the Sinica Academia and selected graduate institutes.<sup>169</sup> After two years' experience, the cooperative areas were regrouped under 5 categories: earth science; bio-economical science; socio-economic technology; science and engineering; and biological science.<sup>170</sup> In the areas of research, the local situation of the ROC was also taken into consideration; for example, pest control, forest ecology, and Taiwanese flora and aquaculture were incorporated into the bio-economical science.

After the ROC was expelled from the United Nations in 1971,

international cooperation in the ROC did not come to a halt. The international academic activities of the ROC were moved to a non-governmental level, and became part of the "flexible relations" (which were discussed in Chapter Three) to keep the ROC in the international academic community. Although UNESCO withdrew its participation from the ROC, the Society for International Education, Science and Culture was established immediately to take over the UNESCO's functions in the ROC. In 1972, the American President, Richard Nixon, sent a team of 8 scientists, headed by Edward E. David, to the ROC. The team discussed the development of plant genetics and disease control, geology and seismology, marine science, standardization and environmental pollution in Taiwan.<sup>171</sup> In 1973, the American Philco Ford Corporation granted US\$ 52,631 to support for a joint study on industrial health by the University of Washington and National Taiwan University.<sup>172</sup> The American Bureau for Medical Aid to China also pledged in 1975 to continue its support for cancer research in the ROC.<sup>173</sup>

However, the international cooperation of the ROC with other countries could be affected by the PRC after it returned to the international community in 1972. In the middle of the 1970s, the training programme for ROC engineers in the Massachusetts Institute of Technology (MIT) was suspended after the PRC accused MIT of training ROC engineers to produce missiles that could be used to attack the PRC.<sup>174</sup>

The higher education systems of the PRC and ROC developed international cooperation programmes of science and technology with foreign countries in the last forty-four years. Through these programmes, the PRC

and ROC incorporated the curriculum of foreign science and technology, imported advanced teaching facilities and equipment, and invited foreign scientists and technologies to teach or do research in these two Chinese higher education systems.

## **6.7 SUMMARY AND CONCLUSION**

This chapter has described the importation of foreign science and technology into the higher education systems of the PRC and ROC. It has been argued in this chapter that unlike classical Chinese higher education, the ruling elites of the PRC and ROC related higher education to the national economy, and stressed the production of technical cadres for economic purposes.

However, the ruling elites of the PRC and ROC adopted different strategies for developing domestic science and technology education. The PRC attempted to create economic modernization with higher education; whereas the ROC established courses in higher education to meet the demands of the industrializing economy, and to sustain economic modernization.

Common to the higher education systems of both the PRC and ROC was the incorporation of foreign resources to develop their domestic scientific and technology capacities. Both Chinese higher education systems adjusted their institutions, changed their curriculum of science and technology, sent students and teachers abroad to receive foreign training, recruited foreign experts, and conducted international joint programmes of science and technology at home. These were the channels used by the PRC and ROC to transfer science and technology from countries which had developed

international political and economic relations with these two Chinese countries.

The next chapter will conclude this thesis.

### Endnotes for Chapter Six

1. Leo A. Orleans, "Chinese Students and Technology Transfer," *Journal of Northeast Asian Studies*, Vol.4, No.4 (Winter 1985), p.3.
2. The higher education system of Republican China comprised general universities which had at least 3 fields of study (from a combination of either of arts, science, law, commerce, engineering, agriculture, medical science, or education), independent colleges (with one or two fields of study), and special colleges. Education of science and technology was emphasized and developed mainly within the university sector. The total student enrolment in these three types of institutions was 83,498 in 1945, and 129,836 in 1946. The number of students enrolled in the fields of science and technology was 34,351 (41.1% of the total student population) in 1945, and 54,796 (42.2%) in 1946. Between 1945 and 1946, 13,563 students were graduated from the courses of science and technology, and accounted for 39.1% of total population of graduates (34,648). See *Tōngjì Tíyào* (Statistical Abstract of the Republic of China, 1956) (Taipei: Directorate-General of Budgets, Accounts & Statistics, Executive Yuan, 1956), p.306.
3. The general nature, task and method of education were governed by Articles 41, 46 and 47 in Chapter 5 of the "Common Programme of the Chinese Political Consultative Conference." Article 41 is stated as follows: "The culture and education of the People's Republic of China are new democratic, that is, national, scientific, and popular. The main cultural and educational tasks of the People's government are: to raise the cultural level of the people, to train personnel for national construction work, to liquidate feudal, comprador, Fascist ideology, and to develop the ideology of serving the people." Article 46 is expressed as follows: "The method of education of the People's Republic of China is to integrate theory with practice. The People's Government shall systematically reform the old education system, subject matter, and teaching methods according to plan." Article 47 is spelt out as follows: "In order to meet the widespread needs of revolutionary work and national construction, universal education shall be carried out, middle and higher education shall be strengthened, technical education shall be stressed, ..." For the Chinese version of Chapter 5 of the "Common Programme," see *Zhōnghuá Rénmín Gònghéguó Gòngtóng Gānglǐng Jí Xīnjiù Xiànfǎ* (The People's Republic of China: a Collection of the Common Programme, and New and Old Constitutions) (Hong Kong: Běifāng, 1970). For the English version, see Ching-Ming Ho and Eli Seifman (eds.), *Toward a New World Outlook: A Documentary History of Education in the People's Republic of China, 1949-1976* (New York: AMS Press, 1976), pp.9-11.

4. See the "Directive Concerning the Reform of Educational System" which was passed at the 97th meeting of the State Administrative Council on August 10, 1951 and issued by Premier Zhōu Ēnlái on October 1, 1951. For the Chinese version, see Zhènguó Yuán (ed.), *Zhōngguó Dāngdài Jiàoyù Sīcháo, 1949 - 1989* (China's Contemporary Education, 1949-1989) (Shanghai: Joint Publishing Co., 1991), pp.6-9. See also Ēnlái Zhōu, *Zhōu Ēnlái Jiàoyù Wénxuǎn* (Selected Works of Zhōu Ēnlái on Education) (Beijing: Jiàoyù Kēxué, 1984), p.10.
5. The speech of Mǎ Xùlún at the First National Higher Education Conference in 1950 is in Ching-Ming Ho and Eli Seifman (eds.), *Toward a New World Outlook: A Documentary History of Education in the People's Republic of China, 1949 - 1976* (New York: AMS Press, 1976), p.13.
6. "The Central Committee of the Chinese Communist Party's Resolution concerning the Reform of Education System" was promulgated on May 27, 1985. It is in Zhènguó Yuán (ed.), *Zhōngguó Dāngdài Jiàoyù Sīcháo, 1949-1989* (China's Contemporary Education, 1949-1989) (Shanghai: Joint Publishing Co., 1991), pp.398-407.
7. *Uphold Reform and Strive For the Realization of Socialist Modernization -- Documents of the National Conference, September, 1985* (Beijing: Foreign Languages, 1985), p.37.
8. Zédōng Máo, *Máo Zédōng Xuǎnjì Dièrjuàn* (Selected Works of Máo Zédōng) (Beijing: People's, 2nd ed., 1991), Vol.2, p.707.
9. Ēnlái Zhōu, *Zhōu Ēnlái Jiàoyù Wénxuǎn* (Selected Works of Zhōu Ēnlái on Education) (Beijing: Jiàoyù Kēxué, 1984), pp.6-7.
10. See the 1950 speech of Mǎ Xùlún in Ching-Ming Ho and Eli Seifman (eds.), *Toward a New World Outlook: A Documentary History of Education in the People's Republic of China, 1949 - 1976* (New York: AMS Press, 1976), p.13.
11. Zhāng Xīruò was the second Minister of Education (November 1952 to February 1958). He did not only witness many changes in higher education, but also introduced changes in the policy of higher education during the First Five-Year Period. His speech originally appeared in *Rénmín Rìbào* (People's Daily), 12 December, 1952. Part of the speech was quoted by Jan-Ingvar Löfstedt in *Chinese Educational Policy: Changes and Contradictions 1949-79* (Stockholm, Sweden: Almqvist & Wiksell International, 1980), p.74.
12. Section 4 of "The Central Committee of the Chinese Communist Party's Resolution concerning the Reform of the Education System." The Regulation is in Zhènguó Yuán (ed.), *Zhōngguó Dāngdài Jiàoyù Sīcháo, 1949 - 1989* (China's Contemporary Education, 1949 - 1989) (Shanghai: Joint Publishing Co., 1991), pp.398-407.

13. Article 9 in Central Committee of the Communist Party of China and State Council, "Zhōngguó Jiàoyù Gǎigé He Fāzhǎn Gāngyào" (Guidelines of China's Educational Reform and Development), *Wénhuì Bào* (Shanghai), 27 February, 1993.
14. Article 1 of the 1993 "Guidelines of China's Educational Reform and Development," op. cit.
15. See, for examples, the speeches of Jiāng Zémín and Lǐ Péng respectively in *Rénmín Rìbào* (People's Daily), 20 December, 1989, p.1; and 11 April, 1991, p.3.
16. Jièshí Jiǎng, "Education Policy for the Future," *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yá-lùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.16, pp.127-135, particularly p.128.
17. Lǐfū Chén, *Zhàn Shí Jiàoyù Fāngzhēn* (Education Policy During Wartime) (Taipei: Central Party History Committee, Chinese Nationalist Party, 1976), pp.181-182.
18. *Education in Taiwan Province, the Republic of China* (Taipei: Department of Education, 1984), p.2.
19. See the Section 1 of the "Integrative Report on the Intermediate Development Plan of State Higher Education Institutions, 1992-1995," in *Gāojiào Jiǎnxùn* (Higher Education Bulletin), 24 August, 1992, p.1.
20. Ministry of Education, *Education in the Republic of China* (Taipei: Bureau of Statistics, Ministry of Education, 1992), p.45.
21. Jièshí Jiǎng, "The Nature of the Three People's Principles," *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yá-lùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.3, pp.157-158, 164.
22. Jièshí Jiǎng, "The Complete Reform: Its Spirit, Action and Criterion," *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yá-lùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.29, pp.253-264, particularly p.261.
23. Jièshí Jiǎng, "National Instruction to All Youths in 1968 Youth Festival," *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yá-lùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.29, pp.155-160, particularly pp.159-160.



24. Jièshí Jiǎng, "The Theory of Science (continued)," *Xiān Zǒngtǒng Jiǎng Gōng Sīxiǎng Yánlùn Zǒngjí* (A Complete Collection of Thoughts and Speeches of the Late President Jiǎng Jièshí) (Taipei: Central Party Committee, Chinese Nationalist Party, n.d.), Vol.29, pp.291-326.
25. Qíyún Zhāng, "Kēxué Jīnrù Nóngcūn" (The Widespread of Science in Villages), *Jiàoyù Yu Wénhuà* (Education and Culture Weekly), Vol.6, No.8 (19 February, 1955), pp.14-15.
26. Since the Soviet philosophy of higher education was firmly rooted in the conviction that man is destined to perform a specific task in a society, those who are capable of advancing into higher education are supposed to become specialists so that they may make maximum use of their capability. Therefore, the purpose of USSR higher education was to "provide specialists, appropriately trained, but also well indoctrinated in Communist doctrine, to meet the objectives defined by the State's leaders in the economic, scientific, social and cultural fields." See Nicholas De Witt, *Education and Professional Employment in the U.S.S.R.* (Washington, D.C.: U.S. Government Printing Office, 1961), p.25; and Seymour M. Rosen, *Significant Aspects of Soviet Education* (Washington, D. C.: Office of Education, U. S. Department of Health, Education and Welfare, 1965), p.10.
27. In the former USSR, there were three major types of higher education institutes: (1) universities, (2) Single-faculty institutes, and (3) multi-faculty institutes. In general, the universities were centres to supply theoreticians and scholars, while the institutes provided professionals in applied fields to meet the planned needs of the Soviet economy and society. Single-faculty institutes were sponsored by a particular branch of the economy such as industry, culture, transport, trade, or agriculture. They were devoted to supplying professionally trained personnel for one particular branch of the national economy. The multi-faculty institutes were polytechnical and industrial in nature and helped train engineers of applied sciences, like metallurgy, petroleum, engineering, machine-construction, power engineering. See Seymour M. Rosen, *Significant Aspects of Soviet Education* (Washington, D. C.: Office of Education, U. S. Department of Health, Education and Welfare, 1965), p.11; and *Education in the USSR* (Washington, D. C.: Office of Education, U. S. Department of Health, Education and Welfare, 1957), p.186.
28. In the PRC, the reform plan was initially proposed in a conference of deans of engineering colleges convened by the Ministry of Education in Beijing in November, 1951. In the conference, the emphasis on polytechnical education as the industry-based reform was put across by Professor Zhou Peiyuan of the Qinghua University. He noted that higher education institutes of the former USSR trained youngsters on the basis of making practical application from a highly theoretical foundation, and that what Soviet students learnt was detailed and

- highly specialized. He also propounded that higher education in the PRC should follow the Soviet model of specialization. This is quoted in Jan-Ingvar Löfstedt, *Chinese Educational Policy: Changes and Contradictions 1949-79* (Stockholm: Almqvist & Wiksell International, 1980), p.73.
29. The directive was passed in the 180th meeting of State Administrative Council on May 29, 1953. Zhèngguó Yuán (ed.), *Zhōngguó Dǎngdài Jiàoyù Sīcháo, 1949 - 1989* (China's Contemporary Education, 1949 - 1989) (Shanghai: Joint Publishing Co., 1991), pp.9-16.
  30. For example, the engineering faculties of the Běijīng University and Yínchíng University were moved into the Qīnghuá University so that it became a multi-faculty polytechnical university. Faculties of arts, science and law of the Qīnghuá University and Yínchíng University were incorporated into the Běijīng University. Thus, the Běijīng University became a comprehensive university but the Yínchíng University was dissolved. A detailed list of higher education institutes reorganized in the early 1950s is in *Zhōngguó Jiàoyù Niánjiàn, 1949-1981* (China Education Yearbook, 1949-1981) (Beijing: China Encyclopedia, 1984), p.233.
  31. Natural sciences in the PRC included physics, chemistry, biology, mathematics, astronomy, and geology.
  32. *Zhōnghuá Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949-1981) (Beijing: China Encyclopedia, 1984), p.284.
  33. Ministry of Education, Department of Planning, *Achievement of Education in China: Statistics, 1949 - 1983* (Beijing: People's Education Press, 1984), p.51.
  34. According to Frederick H. Harbison, the percentages of students of higher education by field of study should be 25% for law, humanities and social sciences, 25% for teacher education, and 50% for natural and applied science. See Harbison, "The Strategy of Human Resource Development in Modernizing Economies" in *The Challenge of Aid to Newly Developing Countries* (Paris: OECD, 1965), p.27.
  35. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 19 October, 1992, p.3.
  36. *Guāngmíng Rìbào* (Guangming Daily), 28 July, 1990.
  37. Other courses of engineering education included applied geology, mining, power engineering, metallurgy, electrical machines and instruments, radio and electronics, chemical engineering, grain processing and food industry, light industry, mapping surveying and hydrology, transportation, and telecommunications.

38. Department of Planning of the Ministry of Education, *Achievement of Education in China: Statistics, 1949 - 1983* (Beijing: People's Education Press, 1984), pp.78-79; *Achievement of Education in China: Statistics, 1980 - 1985* (Beijing: People's Education Press, 1986), p.31; and *Achievement of Education in China: Statistics, 1980 - 1985* (Beijing: People's Education Press, 1991), p.31.
39. The four higher education institutes were the Chinese University of Science and Technology (first established in Běijīng in 1958, but later moved to Héfěi in Ānhuī province, 1969); the Chèngdōu University of Science and Technology (1978); the Hǎerbīn University of Science and Technology University (in Hēilóngjiāng province); and the Shànghǎi University of Science and Technology.
40. Other courses offered before 1969 were nuclear physics, chemical physics, radioactive and radiative chemistry, dynamics, geochemistry and rare elements, and biophysics. See Immanuel C. Y. Hsü, "The Impact of Industrialization on Higher Education in Communist China," in Frederick Harbison and Charles A. Myers (eds.), *Manpower and Education: Country Studies in Economic Development* (New York: McGraw-Hill, 1985), p.225.
41. Wáng Dézī (Deputy-President of the Nánjīng University), "Gāoděng Jiàoyù Bìxū Zhòngshì Xuékē Jiànshè" (Higher Education Institutes Should Emphasize the Construction of Fields of Study), *Gāojiào Zhànxiàn* (Higher Education Front), 1984, No.12, pp.11-12; Táng Áoqīng (President of the Jílín University), "Zěnyàng Bǎ Zhòngdiǎn Dàxué Bàrchéng Liǎnggè Zhōngxīn" (How to make Key Universities to Become Teaching and Research Centre), *Gāojiào Zhànxiàn* (Higher Education Front), 1985, No.3, pp.5-7; and Dīng Shísūn (President of the Běijīng University), "Gǎigé Xuéxiào Gōngzuò Zhǔdòng Shìyīng Jīnglì Hé Shèhuì Fāzhǎn De Xūyào" (Reform the Work of Higher Education Institutes: Actively Adapt to the Needs of the Development of Economic and Society), *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 29 June, 1985.
42. Zuòrùn Dù and Lǐ Zhèng, "Màntán Lǐkē Réncái De Péiyǎng" (Discussion about the Fostering of Science Manpower), *Gāojiào Zhànxiàn* (Higher Education Front), No.14 (1984), pp.10-12.
43. Dīng Shísūn (President of the Běijīng University), "Gǎigé Xuéxiào Gōngzuò Zhǔdòng Shìyīng Jīnglì Hé Shèhuì Fāzhǎn De Xūyào" (Reform the Work of Higher Education Institutes: Actively Adapt to the Needs of the Development of Economic and Society), *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 29 June, 1985.
44. "Miànxiàng Xiàndàihuà, Miànxiàng Shìjiè, Miànxiàng Wèilái: Nánkāi Dàxué Jiàoyù Gǎigé Zōngshù" (Orientation Towards Modernization, the World and Future: A Summary of the Educational Reform of the

- Nánkāi University), in *Rénmín Rìbào* (People's Daily), 6 July, 1992, p.1.
45. *Rénmín Rìbào* (People's Daily), 19 September, 1987.
  46. See a letter of the president of the Nánjīng University to its alumni. The letter is in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 23 January, 1993, p.3.
  47. Tony Saich, *China's Science Policy in the 80s* (Manchester: Manchester University Press, 1989), p.72.
  48. Xué-Wén Wāng, *Lǚnxī Zhōnggòng Jiàoyù Gǎigé Yu Sihua Jiànshè Shī Guānxì* (Analysis of the Relations Between the Education Reform and the Construction of Four Modernizations in the People's Republic of China) (Taipei: Cheng Chung, 1986), p.149.
  49. Tong B. Tang, *Science and Technology in China* (Harlow, Essex: Longman, 1984), p.9.
  50. In 1963, there were 29 comprehensive universities, 120 institutes of engineering, 44 institute of agriculture, 8 institutes of forestry, and 85 institutes of medicine and pharmacy. In this year, only 20 million yuan were shared by 286 higher education institutes related to science and technology; each institute, on the average, could take only 69,900 yuan. Moreover, the science and technology funding for higher education was unstable. The amount was doubled, i.e. 40 million yuan, in 1980, but was greatly reduced in 1981. In 1982, the science and technology fund of 20 million yuan was granted only to key higher education institutions. See *Zhōnghuá Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949-1981) (Beijing: China Encyclopedia, 1984), pp.377-378; Department of Planning of the Ministry of Education, *Achievement of Education in China: Statistics, 1949 - 1983* (Beijing: People's Education Press, 1984), p.51.
  51. Genevieve C. Dean, *Science and Technology for Development: Technology Policy and Industrialization in the People's Republic of China* (Ottawa: International Development Research Centre, 1979), p.29.
  52. State Statistical Bureau, *Ten Great Years: Statistics of the Economic and Cultural Achievements of the People's Republic of China* (Beijing: Foreign Languages, 1960), p.203. See also John M. H. Lindbeck, "Organization and Development," *Sciences in Communist China: a Symposium Presented at the New York Meeting of the American Association for the Advancement of Science, December 26-27, 1960* (Washington, D.C.: American Association for the Advancement of Science, 1961), p.15.
  53. Niè Róngzhēn used the term, "five front armies", to classify institutions which were supposed to conduct research. They were the Chinese Academy of Sciences; institutes of higher education; and research

institutes run by different state ministries, by provincial and municipal governments, and by the Ministry of National Defence. See *Rénmín Rìbào* (People's Daily), 19 December, 1982.

54. Tony Saich, *China's Science Policy in the 80s* (Manchester: Manchester University Press, 1989), p.72.
55. *Guāngmíng Rìbào* (Guangming Daily), 19 January, 1978.
56. Yi Fang, "Outline National Plan for the Development of Science and Technology, Relevant Policies and Measures," *Beijing Review*, 7 April, 1978, No.14, p.14.
57. 1985 "Decision of the Central Committee of the Communist Party of China Concerning Reform of the Science and Technology Management System," *Rénmín Rìbào* (People's Daily), 20 March, 1985. The English version can be found on State Science and Technology Commission of the People's Republic of China, *Guide to China's Science and Technology Policy: White Paper on Science and Technology, No.1* (Beijing: China Academic Publishers, 1987), pp.395-407.
58. Richard P. Suttmeier, "Science Policy and Organization," in Leo A. Orleans (ed.), *Science in Contemporary China* (Stanford: Stanford University Press, 1980), p.44.
59. Ēnjīng Lǐ, "Chōngfèn Fāhuī Gāoděng Yuànxào Kēyán Gōngzuò De Zhòngyào Gōngnéng" (Sufficiently Develop the Important Function of Scientific and Technological Research of Higher Education Institutes), *Bulletin of Jiāngxī Institute of Finance and Economics*, 1983, No.4, pp.69-72.
60. Áoqīng Táng, "Zěnyàng Bǎ Zhòngdiǎn Dàxué Bànhéng Liǎnggè Zhōngxīn" (How to make Key Universities to Become Teaching and Research Centre), *Gāojiào Zhànxiàn* (Higher Education Front), No.3 (1985), pp.5-7.
61. Leo A. Orleans, "Soviet Influence on China's Higher Education," in Ruth Hayhoe and Marianne Bastid (eds.), *China's Education and the Industrialized World* (New York/London: M.E. Sharpe Inc., 1987), p.195.
62. Dīng Zhāng, "Wǒguó Kēyán Tǐzhì Tiáozhēng Gǎigé De Yīgè Zhòngyào Wèntí" (The Important Problem of the Structural Reform of Scientific and Technological Research of the People's Republic of China), *Bulletin of Héběi University*, 1981, No.2, pp.6-11.
63. State Statistical Bureau (ed.), *Changes and Development in China (1949-1989)* (Beijing: Beijing Review, 1989), p.49.
64. State Education Commission and Shanghai Intellectual Development Research Institute (eds.), *1991 Nián Wǒguó Jiàoyù Shìyè Fāzhǎn Tǒngjì*

- Kuàibào* (A Brief Statistics of the Development of Education in the People's Republic of China in 1991) (Beijing: State Education Commission, 1991), p.25.
65. Shēnghóng Wáng (Gen. ed.), *Gāoděng Jiàoyù Wéi Dìfāng Jīngjì Fúwù* (Higher Education Serves Local Economy) (Shanghai: Tōngjī University Press, 1992), p.227.
  66. Wen-Hsing Wu, Shun-Fen Chen, and Chen-Tsou Wu, "The Development of Higher Education in Taiwan," in Philip G. Altbach, and Viswanathan Selvaratnam (eds.), *From Dependence to Autonomy: The Development of Asian Universities* (Dordrecht: Kluwer Academic Publishers, 1989), pp.265-266.
  67. The other six universities are: in the public sector, the National Chengchi University (1954), National Chiao Tung University (1958), National Central University (1962), and National Sun Yat-Sen University (1980); and in the private sector, the Soochow University (1954) and Fujen University (1963).
  68. The University Act underwent modifications in 1972, 1982 and 1993. See Article 4 of the 1934 "Regulation of University Structure," and of the 1948 "University Act" and its 1982 version. The first two regulation or act are in Ēnróng Sòng, and Xián Zhāng (eds.), *Zhōnghuá mínguó Jiàoyù Fǎguī Xuǎnbiān, 1912 - 1949* (Selection of Education Acts of Republic of China, 1912 - 1949) (Jiāngsū: Jiāngsū Education, 1990), pp.415-418 and 429-433. The 1982 version is in *Gāoděng Jiàoyù Fǎguī Xuǎnjí* (Selection of the Regulations of Higher Education) (Taipei: Department of Higher Education, Ministry of Education, 1990), pp.1-6. The 1993 version is in Legislative Yuan, *Lǐfǎyuàn Yìàn Guānxì Wénshū: Dàxuéfǎ* (Documents of Legislative Yuan: The University Act).
  69. Many elements in the higher education system of the ROC, as observed by Wen-Hsing Wu et al., were similar to that in the US. These elements were to include institutional organization, study period, curriculum, degree structure and graduation requirement. See Wen-Hsing Wu, Shun-Fen Chen, and Chen-Tsou Wu, "The Development of Higher Education in Taiwan," in Philip G. Altbach, and Viswanathan Selvaratnam (eds.), *From Dependence to Autonomy: The Development of Asian Universities* (Dordrecht: Kluwer Academic Publishers, 1989), p.274.
  70. "Ideas for Education," *Free China Review*, Vol.17, No.4 (April 1967), p.73.
  71. H. F. McCusker, Jr., and H. J. Robinson, *Education and Development: The Role of Educational Planning in the Economic Development of the Republic of China* (Menlo Park, California: Stanford Research Institute, Stanford University, 1962).

72. Shih Chien-sheng also suggested that students were merely interested in obtaining a degree in whatever field of study. Zhōng Hànqīng took the increase of female enrollment, particularly in humanities and social sciences, as a major reason. See Chien-Sheng Shih, "High-Level Manpower and Higher Education in Taiwan," in Chéng Lǐ (ed.), *Táiwān Jīngjì Fāzhǎn Lùnwénjí: Táiwān Rénlì Zīyuán Lùnwén Jí* (Selected Works on Taiwan Economic Development: Human Resources) (Taipei: Lián Jīng, 1975), p.204; and Hànqīng Zhōng, *Jiàoyù Yu Jīngjì Fāzhǎn Zhī Yánjiū* (A Study of Education and Economic Development) (Taipei: Yòu Shī, 1988), p.202.
73. *A Study of the Employment Status of College and University Graduates: Report II* (Taipei: Ministry of Education, 1966), p.57.
74. *A Summary of the Republic of China's Six-Year Plan for Economic Development in Taiwan, 1976-1981* (Taipei: Economic Planning Council, Executive Yuan, 1976), p.5.
75. Chi-ming Hou and Yu-chu Hsu, "The Supply of Labour in Taiwan," which was delivered in a conference held between 29 December 1975 and 2 January 1976. Their article is in *Conference on Population and Economic Development in Taiwan* (Taipei: Institute of Economics, Academia Sinica, 1976), pp.315-362. See particularly p.355.
76. *Quójiā Jiànshè Kējì Réncái Xūqú Tuīgū, 1990 - 2000* (The Projection of the Demand for Scientific-technological Manpower of National Construction, 1990 - 2000) (Taipei: Economic Planning Council, Executive Yuan, 1991), p.8.
77. No separate data about degree courses alone and individual fields of study were available until 1967. See *Rénlì Chángqī Fāzhǎn Zhǎnwàng* (The Prospect of Long-term Human Resource Development) (Taipei: Economic Planning Council Construction, Executive Yuan, 1986), p.36.
78. The ratio of students enrolled in science and technology to those in humanities and social sciences was 1 : 1.17 in 1992. See *Gāojiào Jiǎnxùn* (Higher Education Bulletin), No. 13 (10 April, 1992), p.2.
79. "Technology College Will Open in Fall," *Free China Review*, Vol.24, No.4 (April 1974), p.50.
80. There were two types of programmes in the Taiwan Institute of Technology: two-year; and four-year. Graduates would be awarded degrees of engineering. The two-year courses admitted graduates of technical junior college and with working experience, and offered courses of electronic engineering and industrial management technology. In 1977, there were 92 students majoring in electronic engineering, and 77 in industrial management technology. The four-year programme admitted graduates of vocational high schools who

passed college entrance examinations, and offered courses including mechanical, textile, and construction engineering. See "Technology Institute Graduates First Class," *Free China Review*, Vol.27, No.2 (February 1977), p.45.

81. According to the establishment plan of the National Huádōng University, there would be 8 colleges (humanities, sciences, engineering, management, social sciences, arts, integrated studies, geology, and oceanology), 38 research institutes and 6 research centres. See *Gāojiào Jiǎnxùn* (Higher Education Bulletin), No. 9 (10 December, 1991), p.2; and "Guólì Huádōng Dàxué Xiān Shè Wǔ Yánjiūsuo" (Five Research Institutes will be First Established in the National Huádōng University), in *Hǎiwài Xuérén* (Overseas Scholars), No.236 (April 1992), p.14.
82. Up to 1991-1992, the distribution of higher education institutions over Taiwan was extremely uneven: 56% of them were concentrated in the northern part of Taiwan; 20% each in southern and central regions; and only 4% were located in the eastern part. See Ministry of Education, *Education Statistical Indicators, Republic of China, 1992* (Taipei: Ministry of Education, 1992), p.8.
83. The figures were calculated by this thesis from the data provided in *Zhōnghuámínguó Gōngsīlì Dàzhuān Yuànxìào Bìyè Rénsù Tǒngjì (71-77 Xuéniándù)* (Statistics of Graduates of Public and Private Tertiary Institutions of Republic of China, 1982 - 1988) (Taipei: Statistics Department, Ministry of Education, 1990), pp.1-2.
84. These institutes are the Yuan-Tze Memorial College of Engineering (1989), Huafan Institute of Technology (1990), Chung-hua Polytechnic Institute (1990), Dai-yeh Institute of Technology (1990), and Kaohsiung Polytechnic Institute (1990).
85. *1967 NCSD Review* (Taipei: National Council on Science Development, 1967), p.1.
86. *1965 NCSD Review* (Taipei: National Council on Science Development, 1965), p.1.
87. Herbert L. Lionberger, and H. C. Chang, *Farm Information for Modernizing Agriculture: The Taiwan System* (New York: Praeger, 1970), p.36.
88. "Institute to Serve Industrial Technology," *Free China Review*, Vol.23, No.8 (August 1973), pp.49-50.
89. "Premier Sun Yun-suan's oral administrative [sic.] report to the first meeting of the 62nd session of the Legislative Yuan, September 22, 1978," *Free China Review*, Vol. 28, No. 11 (November 1978), pp.51-60.



90. The ROC authorities designated four major types of problem-oriented research projects. They were projects which were related to economic development such as information technology, very large scale integrated circuits, biotechnology, and material science and technology; which aimed at improving the quality of life, such as hepatitis control, and environmental control; which were linked with basic sciences such as the study of mesosphere, and oceanology; and which were related to humanities and social sciences, such as gerontology, and social change. See Kwoh-Ting Li, "A Report on the Development of Science & Technology in [the] R. O. C., 1982-1986," *Sino-American Relations*, Vol. 13, No. 3 (Autumn, 1987), p.12.
91. *Republic of China Yearbook, 1990-91* (Taipei: Kwang Hwa, 1990), p.400.
92. Administrative Research and Evaluation Commission, *A Review of Public Administration, the Republic of China, 1973* (Taipei: Executive Yuan, 1973), p.21.
93. Kwoh-Ting Li, "A Report on the Development of Science & Technology in [the] R. O. C., 1982-1986," *Sino-American Relations*, Vol. 13, No. 3 (Autumn, 1987), pp.11-12.
94. Administrative Research and Evaluation Commission, *A Review of Public Administration, the Republic of China, 1973* (Taipei: Executive Yuan, 1973), p.21.
95. Theodore Hsi-en Chen, *The Maoist Educational Revolution* (New York: Praeger, 1974), p.28.
96. A list of specialties of science and technology education of the PRC before 1960 is in Leo A. Orleans, *Professional Manpower and Education in Communist China* (Washington, D.C.: U.S. Government Printing Office, 1961), pp.209-213; and the list revised in 1963 is in *Zhōngguó Jiàoyù Niánjiàn, 1949-1981* (China Education Yearbook, 1949-1981) (Beijing: China Encyclopedia, 1984), pp.245-246.
97. Department of Planning of the Ministry of Education, *Achievement of Education in China: Statistics, 1949-1983* (Beijing: People's Education Press, 1984), p.53; and *Achievement of Education in China: Statistics, 1986-1990* (Beijing: People's Education Press, 1991), p.21.
98. The former USSR reduced its number of specialties (including humanities and social sciences) in higher education from 900 in the early 1930s, to 600 in the early 1950s, to 378 in 1972, and to 300 in 1987. See Xīn Wáng, "Zhōngsū Gāoděng Xuéxiào Zhuānyè Shèzhì Bǐjiào" (Comparison of the Establishment of Specialties in the Higher Education Systems of China and the Soviet Union) in *Wàiguó Jiàoyù Dòngtài* (Trends of Foreign Education, Beijing), January 1990, pp.32-35.

99. Shùnfā Tán, "Gāoxiǎo Kējì Wéi Dìfāng Jīngjì Fúwù De Tújīng" (The Channels Through Which the Science and Technology of Higher Education can Serve Local Economy), in Shēnghóng Wáng (Gen. ed.), *Gāoděng Jiàoyù Wéi Dìfāng Jīngjì Fúwù* (Higher Education Serves Local Economy) (Shanghai: Tóngjǐ University Press, 1992), pp.204, 207.
100. Cited in Leo A. Orleans, "Soviet Influence on China's Higher Education," Ruth Hayhoe and Marianne Bastid (eds.), *China's Education and the Industrialized World* (New York/London: M.E. Sharpe Inc., 1987), p.189.
101. J. D. Bernal, "Science and Technology in China," *Universities Quarterly*, Vol.11 (1956), pp.64-75.
102. Shiqi Huang, "Contemporary Educational Relations with the Industrialized World: A Chinese Perspective," in Ruth Hayhoe and Marianne Bastid (eds.), *China's Education and the Industrialized World* (New York/London: M.E. Sharpe Inc., 1987), p.233.
103. In 1988, 593 foreign teachers were employed to teach on a yearly basis and 1,409 foreign experts were invited to lecture on a short-term basis in 67 higher education institutes in 1988. However, 52.3% of foreign teachers and 48.3% of experts came from the US. The second largest supplier country was Japan. The percentages of Japanese teachers and experts invited by the PRC were respectively 7.6% and 18.8%. The next two countries were Britain and Canada. See Jian Li (Gen. ed.), *Zhōngguó Jiàoyù Niánjiàn, 1989* (Yearbook of Education in China, 1989) (Beijing: People's Education, 1990), p.337.
104. Section II of the Agreement between Hunan Medical College and the Yale-China Association Concerning the Program in English Language Instruction. The Agreement was signed on 6 April, 1987, and is in Edgar A. Porter, *Foreign Teachers in China: Old Problems for a New Generation, 1979-1989* (New York: Greenwood, 1990), pp.103-105.
105. Central Educational Science Research Institute, *Zhōnghuá Rénmín Gònghéguó Jiàoyù Dàshìjì* (Educational Events of the People's Republic of China) (Beijing: Educational Science, 1984), p.176.
106. Leo A. Orleans, *Professional Manpower and Education in Communist China* (Washington, D.C.: U.S. Government Printing Office, 1961), p.117.
107. The twenty-five departments of science and technology before 1954 were as follows. In the National Taiwan University, there were departments of chemistry, geology, zoology, botany, mathematics and physics in the College of Science; civil engineering, mechanical engineering and chemical engineering in the College of Engineering; agricultural techniques, agricultural engineering, agro-biology, forestry, agricultural medicine, agriculture and economics, and gardening in the

College of Agriculture; and medicine in the College of Medicine. In Provincial College of Agriculture, there were departments of agriculture, forestry, and agro-chemistry. In the Provincial College of Technology, there were departments of mechanical engineering, electrical engineering, applied chemistry, civil engineering, and architecture. See *Dàxué Gè Xuéyuàn Huàfēn Wèntí Zhī Yánjiū* (Study of Division of Tertiary Education Institutes) (Taipei: The Executive Yuan, 1990), p.78.

108. *Dìsìcè Zhōnghuámínguó Jiàoyù Niánjiàn (Shàng)* (The Fourth Education Yearbook of Republic of China) (Taipei: Cheng Chung, 1976), Vol.1, p.719; *Dìwǔcè Zhōnghuámínguó Jiàoyù Niánjiàn (Shàng)* (The Fifth Education Yearbook of Republic of China) (Taipei: Cheng Chung, 1985), Vol.1, p.885.
109. *Gāojiào Jiǎnxùn* (Higher Education Bulletin), No. 19 (10 October, 1992), p.1.
110. *Hǎiwài Xuérén* (Overseas Scholars), No. 243 (30 November, 1992), p.40.
111. *Dìsìcè Zhōnghuámínguó Jiàoyù Niánjiàn (Xià)* (The Fourth Education Yearbook of Republic of China) (Taipei: Cheng Chung, 1976), Vol.2, p.941.
112. "Scientific Works Translated into Chinese," *Free China Review*, Vol.18, No.1 (January 1968), p.57.
113. Huang Shiqi gave data which was inconsistent with the PRC's official record. Between 1949-1966, the PRC, according to Huang, sent 8,424 students to universities and polytechnical institutes of the former USSR and 1,109 students to Eastern European socialist countries. See Huang Shiqi, "Contemporary Educational Relations with the Industrialized World: A Chinese Perspective," in Ruth Hayhoe and Marianne Bastid (eds.), *China's Education and the Industrialized World* (New York/London: M.E. Sharpe Inc., 1987), p.225.
114. *Xinhua News Agency*, 4 January, 1980, p.4; and *Fareast Broadcasting Information Service*, 9 January, 1980, p.4.
115. "State Education Commission's Provisions on Studying Abroad," in *Xinhua News Agency*, 10 June 1987.
116. The shift in the PRC's policy of sending students abroad took place only after President Richard Nixon began to normalize Sino-American relations in 1972. The first batch of six science and technology workers of the PRC was sent to the Stanford University in November 1972. Amongst them, four researchers came from the Chinese Academy of Science, and two lecturers from the Chinese University of Science and Technology. Their age ranged from 36 to 44.

117. *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 22 February, 1986.
118. Ibid.
119. Leo A. Orleans, "Chinese Students and Technology Transfer," *Journal of Northeast Asian Studies*, Vol.4, No.4 (Winter 1985), pp.13-14.
120. Undergraduates were selected by the Ministry of Education from newly admitted or first-year college students. Postgraduate students were mainly selected from those currently enrolled in graduate schools or research institutes. Visiting scholars were recruited from in-service teachers of higher education institutions and research institutes, and qualified personnel from other production units or government agencies. See Shiqi Huang, "Contemporary Educational Relations with the Industrialized World: A Chinese Perspective," in Ruth Hayhoe and Marianne Bastid (eds.), *China's Education and the Industrialized World* (New York/London: M.E. Sharpe Inc., 1987), p.229.
121. Jian Li (Gen. ed.), *Zhōngguó Jiàoyù Niánjiàn, 1989* (Yearbook of Education in China, 1989) (Beijing: People's Education, 1990), p.330.
122. *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 22 February, 1986.
123. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 26 February, 1993, p.1.
124. This percentage was taken from the statistics concerning the period between 1978 and 1991. In this period, 50,000 (31.3% out of 160,000) students returned to the PRC. More than 90% of the returnees in this period was funded by the government. See *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 24 March, 1992, p.1
125. Jian Li (Gen. ed.), *Zhōngguó Jiàoyù Niánjiàn, 1989* (Yearbook of Education in China, 1989) (Beijing: People's Education, 1990), p.181.
126. *Míng Bào* (Ming Pao Daily), 6 June, 1992, p.8.
127. Leo A. Orleans, "Soviet Influence on China's Higher Education," in Ruth Hayhoe and Marianne Bastid (eds.), *China's Education and the Industrialized World* (New York/London: M.E. Sharpe Inc., 1987), p.187.
128. Shiqi Huang, "Contemporary Educational Relations with the Industrialized World: A Chinese Perspective," in Ruth Hayhoe and Marianne Bastid (eds.), *China's Education and the Industrialized World* (New York/London: M.E. Sharpe Inc., 1987), p.233.
129. China Handbook Editorial Committee, *Education and Science* (Beijing: Foreign Languages, 1983), pp.165-166.

130. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 27 January, 1993, p.3.
131. Edgar A. Porter, *Foreign Teachers in China: Old Problems for a New Generation, 1979-1989* (New York: Greenwood, 1990), pp.70-71.
132. Articles 1 and 8 of the "Regulation of Studying Abroad," *Jiàoyù Fǎguī Huìbiān* (A Collection of Education Acts) (Taipei: Commission of Acts, Ministry of Education, 1975), Vol.2, pp.975-978.
133. Each applicant had to pass civil education examination in colleges, could produce certificate of language proficiency issued by officially recognized authorities, had admission certificate issued by foreign learning institutions of good standing and two letters of recommendation from former faculty members or employing organization. Male applicants were also required to produce military service certificates. See "Overseas Study Regulations Changed," *Free China Review*, Vol.26, No.5 (May 1976), p.52.
134. *Tǒngjì Tíyào* (Statistical Abstract of the Republic of China, 1956) (Taipei: Directorate-General of Budgets, Accounts & Statistics, Executive Yuan, 1956), p.313.
135. *Zhōnghuámínguó Jiàoyù Tǒngjì (Míngguó 79 Nián)* (Educational Statistics of the Republic of China, 1990) (Taipei: Ministry of Education, 1990), pp.56-57.
136. *Tǒngjì Tíyào* (Statistical Abstract of the Republic of China, 1961) (Taipei: Directorate-General of Budgets, Accounts & Statistics, Executive Yuan, 1961), pp.390-393,
137. The figures were calculated by this thesis from the data given in *Taiwan Statistical Data Books, 1991* (Taipei: Council for Economic Planning and Development, 1991), pp.290-292.
138. The figure was calculated by this thesis from the data given in *Taiwan Statistical Data Books, 1993* (Taipei: Council for Economic Planning and Development, 1993), p.274.
139. "The Return of ROC Scholars from the US to Teach in Taiwan," in *Hǎiwài Xuérén* (Overseas Scholars), No. 240 (31 August, 1992), pp.40-41.
140. The figures were calculated by this thesis from the data in Research, Development, and Evaluation Commission, *Annual Review of Government Administration, the Republic of China, 1978* (Taipei: Executive Yuan, 1978), p.140; and *Zhōnghuámínguó Xíngzhèng GàiKuàng (Míngguó 79 Nián)* (Government Administration of Republic of China, 1990) (Taipei: The Executive Yuan, 1990), p.272.

141. The figures included scholars of humanities and social scientists. See Research, Development, and Evaluation Commission, *Annual Review of Government Administration, the Republic of China, 1980-1981* (Taipei: Executive Yuan, 1981), pp.186-188.
142. Article 4 of the "Quójiā Chángqī Fāzhǎn Kēxué Jīhuà Gānglǐng" (Guideline for Long-Range Development of Science) in *Quójiā Chángqī Fāzhǎn Kēxué Wěiyuánhuì Niánbào* (1965 Annual Report of the Council for Long-Range National Science Development) (Taipei: Council for Long-Range National Science Development, 1965), p.398.
143. These figures were calculated by this thesis from the data in Research, Development, and Evaluation Commission, *Annual Review of Government Administration, the Republic of China, 1980-1981* (Taipei: Executive Yuan, 1981), p.188.
144. Research, Development, and Evaluation Commission, *Annual Review of Government Administration, the Republic of China, 1987* (Taipei: Executive Yuan, 1987), p.215.
145. Article 2 of the Agreement Between the Government of the United States of America and the Government of the People's Republic of China on Cooperation in Science and Technology. The Agreement was signed on 31 January, 1979, and is in Edgar A. Porter, *Foreign Teachers in China: Old Problems for a New Generation, 1979-1989* (New York: Greenwood, 1990), pp.117-119.
146. Huang Shiqi, "Contemporary Educational Relations with the Industrialized World: A Chinese View," in Ruth Hayhoe and Marianne Bastid (eds.), *China's Education and the Industrialized World* (New York/London: M.E. Sharpe Inc., 1987), pp.236-237.
147. Jian Li (Gen. ed.), *Zhōngguó Jiàoyù Niánjiàn, 1989* (Yearbook of Education in China, 1989) (Beijing: People's Education, 1990), p.208.
148. World Bank, *China: Socialist Economic Development* (Washington, D.C.: World Bank, 1981).
149. The first joint programme was the "Chinese University Development Project" which was launched twice: one in 1981; and the other in 1985. With regard to science and technology development of the PRC, the Project aimed at the increase in the quantity of graduates and the volume of research of 26 (actually 28) keypoint higher education institutes by the Ministry of Education; and at the enhancement of the quality of their graduates and research. These aims were expected to be achieved by strengthening teaching and research programmes, improving staff quality, and modernizing laboratory equipment and facilities. See Alexander H. ter Weele, "China/World Bank: University Development," *Prospects*, Vol.13, No.4 (1983), p.493-501. See particularly

p.498.

150. Ruth Hayhoe, *China's Universities and the Open Door* (London: M. E. Sharpe, 1989), p.162.
151. The project was divided into three modules: one for the period of 1982-1988, the other two for 1984-1989. In addition to agricultural research, dissemination of agricultural technology and service through regional agricultural colleges to rural community were emphasized. The facilities for agricultural research in 15 agricultural research centres were also improved. These centres were supposed to cooperate with agricultural universities and develop graduate programs within them. See Ruth Hayhoe, *China's Universities and the Open Door* (London: M. E. Sharpe, 1989), pp.180-181.
152. *Bulletin of the Chinese University of Hong Kong*, Summer and Autumn, 1991, p.16.
153. Shiqi Huang, "Contemporary Educational Relations with the Industrialized World: A Chinese View," in Ruth Hayhoe and Marianne Bastid (eds.), *China's Education and the Industrialized World* (New York/London: M.E. Sharpe Inc., 1987), pp.234-235.
154. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, Overseas edition), 6 June, 1992.
155. "Miànxàng Xiàndàihuà, Miànxàng Shìjiè, Miànxàng Wèilái: Nánkāi Dàxué Jiàoyù Gǎigé Zōngshù" (Orientation Towards Modernization, the World and Future: A Summary of the Educational Reform of the Nánkāi University), in *Rénmín Rìbào* (People's Daily), 6 July, 1992, p.1.
156. Other members included James B. Fisk, President of Bell Telephone Laboratories; Bruce S. Old, senior vice president of Arthur D. Little Inc.; Albert H. Moseman from the Agricultural Development Council; and Daniel F. Margolies and Raymond Bowers from the Office of President Johnson. See "Progress in Science," *Free China Review*, Vol.17, No.10 (October 1967), p.76.
157. U. S. Mutual Security Mission to China, *Economic Progress of Free China, 1951-1958* (Westport, Connecticut: Greenwood, 1970), pp.58-62; and Yánshēng Jīn, "Běnsǎng Zhī Gāoděng Jiàoyù" (Higher Education in the Republic of China), *Jiàoyù Fǔdǎo Yuèkān* (Educational Counselling Monthly), 1959, pp.33-34.
158. The goals of this project on home economics education between Provincial Taiwan Normal University (PTNU) and the Pennsylvania State University (PSU) were: to broaden the PTNU's curriculum of home economics to include family life; to strengthen teaching and demonstration facilities for home economics education; to train in-service home economics teachers in secondary schools; to establish

research institute of home economics; and to keep contact with foreign institutions. See *Qīnián Lái Zhōngměi Jiàoyù Hézuò* (Sino-American Cooperation in Education in Taiwan during the Last 7 Years, 1952-1959) (Taipei: Ministry of Education, 1959), p.20.

159. R. Norris Shreve and Wilfred I. Freel, *To Aid Engineering Education on Taiwan: A Comprehensive Report for Years 1952-1959 to Taiwan Provincial Cheng Kung University and International Cooperation Administration* (Lafayette, Indiana: Purdue University, 1959), p.3.
160. In particular, the Purdue advisors suggested to the administration of the PCKU to monitor the establishment of new courses and curriculum to avoid unnecessary duplication, and to establish a common freshmen course in engineering and a separate chemistry division granting a degree in chemistry within the Department of Chemical Engineering. The Purdue advisors also proposed an increase in the number of teaching staff, and each should not assume more than one administrative position. Chinese teachers were also advised not to "read" from textbooks in class, and adopted a learner-centred approach of teaching, particularly questioning techniques. The Purdue representatives also suggested to the PCKU authorities to raise the technological level of students by, for example, transferring students of low grades out of engineering departments and making rooms for the more able. See R. Norris Shreve and Wilfred I. Freel, *op. cit.*, pp.39-54.
161. U. S. Mutual Security Mission to China, *Economic Progress of Free China, 1951-1958* (Westport, Connecticut: Greenwood, 1970), p.58.
162. Milton A. Berger, *Investment in Taiwan (Formosa): Basic Information for United States Businessmen* (Washington, D.C.: U.S. Government Printing Office, 1959), p.34.
163. Joseph A. Yager, *Transforming Agriculture in Taiwan: The Experience of the Joint Commission on Rural Reconstruction* (Ithaca and London: Cornell University Press, 1988), p.151.
164. *JCRR and Agricultural Development in Taiwan, 1948-1978* (Taipei: Chinese-American Joint Commission on Rural Reconstruction, 1978), p.195.
165. *JCRR and Agricultural Development in Taiwan, 1948-1978* (Taipei: Chinese-American Joint Commission on Rural Reconstruction, 1978), pp.61, 125.
166. "Atomic Research," *Free China Review*, Vol.16, No.10 (October 1966), p.85.
167. "Science Development," *Free China Review*, Vol.17, No.5 (May 1967), p.76.
168. "Science Cooperation Plans Approved," *Free China Review*, Vol.19, No.5 (May 1969), p.62.



169. "Science Cooperation With U.S. Planned," *Free China Review*, Vol.19, No.8 (August 1969), p.67.
170. Each area of science and technology cooperation of the ROC and US was specified in the new agreement signed between Ta-you Wu, Chairman of the National Science Council, and Thomas Owen, Associate Director of the National Science Foundation in 1971. Under each area of science and technology were many sub-divisions. In the area of earth science, seismology, oceanography and meteorology were singled out for cooperation. Bio-ecological science included biological control of pests, forest ecology and genetics, crop science and animal husbandry, plant pathology, flora of the ROC and aquaculture. Socio-economic technology covered areas like pollution and environmental quality, urban problem, water resources, systems analysis and econometrics. Science and engineering involved scientific instrumentation and analysis, scientific and technical communication, standardization and quality control, material science, solid state physics and quantum electronics, and polymer science and engineering. Bio-medical science included public health, nutrition and population studies. See "Science Cooperation with U. S. Enlarged," *Free China Review*, Vol.21, No.8 (August 1971), p.60.
171. "Nixon Science Adviser Visits for Five Days," *Free China Review*, Vol.22, No.6 (June 1972), p.64.
172. "Ford Grant Supports Industrial Health Study," *Free China Review*, Vol.23, No.5 (May 1973), p.70.
173. "U.S. will Continue Medical Assistance," *Free China Review*, Vol.25, No.12 (December 1975), p.48.
174. *Free China Review*, Vol.26, No.10 (October 1976), p.7.

## **CHAPTER SEVEN**

### **CONCLUSION OF THE THESIS**

#### **7.1 PURPOSE**

This chapter concludes the thesis. Firstly, the chapter highlights the similarities and differences of the higher education systems in the PRC and ROC, and presents the concept of "fortress" states to re-interpret the patterns of these two higher education systems. Secondly, the chapter revisits the theoretical themes which have oriented the thinking of this thesis, including the educational convergence thesis, modernization theories, dependency theories, Wallerstein's idea of the world system, and Cowen's concept of educational isomorphisms. Thirdly, the chapter explores the broader implications of the thesis.

#### **7.2 PATTERNS OF HIGHER EDUCATION IN THE PRC AND ROC**

This comparative study of the higher education systems of the PRC and ROC suggests that they had many similarities and differences. Before outlining the patterns of higher education in the PRC and ROC, it is useful to summarize these similarities and differences, in point-form for the purposes of clarity.

##### **7.2.1 Similarities and Differences of the Higher Education Systems in the PRC and ROC**

The evidence of this thesis suggests that the higher education systems of the PRC and ROC shared many similarities with pre-1949 Chinese higher

education. Chinese higher education (before the 1840s, between the 1840s and 1940s, and after 1949) was marked by five common characteristics.

- (1) Chinese higher education was institutionalized in paternalistic socio-political cultures demanding the loyalty of people (including university academics and students) to numerically few political leaders.
- (2) Chinese higher education was dominated, although with moments of struggle, by a monolithic, state-supported, official central value system despite the change of contents over specific periods.
- (3) Ideological and political education was emphasized in the university curriculum.
- (4) The state was a principal actor, particularly in exercising political control, over university administration like the appointment of top university executives, and over curriculum for ideological and political education.
- (5) One of the major tasks of higher education was to recruit officials to staff the state.

Moreover, the higher education systems of the PRC and ROC were similar to each other by diverging from "classical" Chinese higher education (before the 1840s) but converging to "transitional" Chinese higher education (between the 1840s and 1940s) in four aspects.

- (1) Higher education was increasingly geared to economic development.
- (2) The type of state officials recruited by higher education was changed from the literati of Imperial China to those who were trained with skills to manage state affairs, and formulate and implement economic policies.
- (3) The university curriculum of Chinese higher education was marked by numerous fields of study like science and technology.
- (4) Foreign knowledge, particularly science and technology, was

imported into Chinese higher education.

However, the higher education systems of the PRC and ROC diverged from each other in five areas.

- (1) The contents of the central value systems transmitted in the higher education systems of the PRC and ROC differed from each other in their emphases on past Chinese Confucian traditions. The PRC rejected Confucian traditions particularly during the Cultural Revolution (1966-1976); whereas the ROC drew widely from Confucian traditions.
- (2) The PRC attempted to create economic modernization through improving higher education; whereas the ROC adjusted higher education to the needs of its industrializing economy.
- (3) In the area of improving the domestic infrastructures of science and technology in the last forty-four years, the ROC has consistently turned to Western countries, particularly the US; whereas the PRC first turned to the former USSR before their diplomatic break in the early 1960s, and then to Western countries, particularly the US, after the late 1970s.
- (4) The higher education systems in the PRC and ROC were training centres to recruit personnel for top government posts: in the PRC, party and state cadres; and in the ROC, technocrats (holders of higher degrees and with political powers).
- (5) From the late 1980s, the recent higher education reform in the PRC was driven mainly by domestic economic forces (the introduction of market forces), and in the ROC by domestic political forces (the institutionalization of opposition).

The thesis further elaborates two similarities which both contemporary Chinese higher education systems have: graduate education, and centralization.

Despite the institutionalization of research, the competition for a postgraduate place in the higher education systems of the PRC and ROC is higher than Western countries. The ratio of graduates conferred with doctoral,

master and bachelor degrees was 1 : 12.4 : 95.5 in the ROC in 1991,<sup>1</sup> and 1 : 16.2 : 155.3 in the PRC in 1990.<sup>2</sup> In other words, for postgraduate studies, students in the PRC are facing more competition than those in the ROC. But the competition for higher degrees in the ROC is still higher than in Western countries. The corresponding ratio was 1 : 3.2 : 9.6 in the United Kingdom in 1991,<sup>3</sup> 1 : 8.5 : 27.5 in the US in 1990;<sup>4</sup> and 1 : 6.6 : 41 in Canada in 1990.<sup>5</sup>

Moreover, the higher education systems of the PRC and ROC have been marked by centralization – close administration and supervision by the state. Before the introduction of market forces in the PRC in the 1980s, no significant institutional powers were devolved to higher education despite some oscillations between centralization and decentralization between state and regional governments. The "president responsibility system" started in the mid-1980s was the first attempt to give powers to the presidents of about 100 (1%) higher education institutions in the PRC. However, this "president responsibility system" had been suspended since the student movement in 1989, and is now replaced by the "president responsibility system" led by the CCP as discussed in Chapter Four.

Despite this replacement, higher education institutions in the PRC are caught by a tension between decentralization over practical matters under the drive of market forces and centralization over political affairs. After the gradual replacement of the socialist economy by the "socialist market" economy in the mid-1980s, individual higher education institutions can restructure themselves. For example, traditional comprehensive universities can include engineering colleges, management and administrations, and

engineering universities can establish humanities and social sciences. Universities and colleges, as suggested by some university executives whom the writer of this thesis interviewed in the PRC, can establish new courses under the banner of the "socialist market" economy. In 1993, more than 1,000 enterprises were established by universities to improve their financial resources and teachers' salaries.<sup>6</sup> Many university academics in the PRC supported themselves and their institutes by taking a new economic role: to do commercial business (xiàhǎi).<sup>7</sup> Public universities can exercise their limited powers over student admissions and tuition fees. The private sector of higher education re-emerged in the early 1990s.<sup>8</sup>

However, the government of the PRC still regulates the administration of higher education. The amount of tuition fees is standardized by the State Education Commission. The offering of new specializations is controlled by the Commission according to its standardized catalogue. The CCP strictly controls the appointment of top university executives. Their relations with the state and the CCP are still inseparable. Courses of ideological and political education are also stipulated by the CCP. One of the assessment criteria of the performance of universities and teachers is their political attitudes towards the CCP.

As compared with the PRC, higher education in the ROC has been marked by "stronger" centralization. The ROC did not devolve power to its higher education until 1993. In May 1993, Minister of Education, Guō Wéifān, expressed the idea that the "democratization" of higher education is an "inevitable trend." At the same time, he pointed out that the ROC state would

gradually devolve powers to higher education in four major aspects: personnel management; academic freedom; finance; and curriculum.<sup>9</sup>

However, the "academic autonomy" of university faculty members, as suggested by Guō, would be "protected," but limited within campuses. The publications of university academics have to be examined and assessed by the Ministry of Education even though universities themselves were given powers to do preliminary assessment in October 1993.<sup>10</sup> Higher education institutions (including private ones) also have only very limited power to allocate their finance, and their budgets have to be examined by the Ministry of Education and approved by the Legislative Yuan. On university curriculum, Guō admitted that freedom to change university curriculum without state approval is hard to implement.<sup>11</sup> All higher education institutions, both public and private, have to offer the same compulsory courses including ideological and political education prescribed by the Ministry of Education.

Moreover, the establishment of institutes, departments and courses in higher education is still regulated by the Ministry of Education. Individual higher education institutions can set up new institutes and departments according to the conditions laid down by the Ministry, and can offer those courses, at least (as suggested by one of the university academics this thesis interviewed in the ROC) in terms of course titles, approved in the catalogue of specializations standardized by the Ministry.

These similarities and differences of the higher education systems in the PRC and ROC will be used (with minimum repetitions) in the next two sections to define the patterns of these two Chinese higher education systems,

and to state the specific implications of the thesis for theorizing about those theories of development and education with which this thesis began.

### **7.2.2 "Fortress" States and Higher Education In the PRC and ROC**

In this section, the thesis will present the concept of "fortress" states,<sup>12</sup> and their social transformation and educational patterns to re-interpret the tensions of the higher education systems in the PRC and ROC between the preservation of political and cultural identity, the terms on which they defined economic modernization, and the establishment of external links with other countries for economic purposes.

#### **7.2.2.1 Basic Concepts of "Fortress" States**

From the analysis of this comparative study, the thesis suggests that the higher education systems in the PRC and ROC may be understood through the concept of "fortress" states. Such states have the following four characteristics.

- (1) "Fortress" states are under external threat: economic competition with, and potential economic exploitation by, other states in the world economy; and frequently alleged socio-political threats from external enemies designated by an extremely small number of political leaders – the ruling elites.
- (2) These "fortress" states have relatively weak infrastructures of science and technology (in terms of the number of scientists and technologists per 10,000 inhabitants and the percentage of GNP on research and development) for economic development.
- (3) These "fortress" states have dominant central value systems adopted by the ruling elites at the constitutional level as a moral mandate to govern the people, and as a basis of their national identity.
- (4) The socio-political cultures in these "fortress" states are "emperor-



oriented" – characterized by norms demanding people's loyalty to numerically few political leaders.

In the world economy, the PRC and ROC compete with other states for the accumulation of capital. Both Chinese states have a common history of economic exploitation by foreign countries in the second half of the 19th century. The PRC state even uses the term, "semi-colonial", to describe China in this period.<sup>13</sup> To prevent potential economic exploitation, both Chinese states adopted differential strategies to resist the formation of socio-economic structures controlled by foreign countries.

However, the PRC and ROC inherited weak infrastructures of science and technology from their predecessors. The number of scientists and technologists and the percentage of GNP spent on research and development in the PRC and ROC, as mentioned in Chapter Five, were smaller than those in the US and Japan. This forced the PRC and ROC to establish economic ties with foreign countries, and to import their science and technology for economic modernization.

Moreover, the PRC and ROC have seen themselves to be under socio-political threat by foreign countries in the past forty-four years. For example, the PRC (as discussed in Chapter Three) accused the US of having a conspiracy to "democratize" China; whereas the US frequently used the improvement of human rights records in the PRC as a condition for granting it the Most-Favoured Nation status, particularly after the military suppression of student movement in 1989. Since 1949, the ROC had declared that its "civil war" with the PRC had not ceased. The claim was withdrawn only in the

early 1990s. Up to now (1993), the ROC state still demands that the PRC renounce the potential use of military forces to take back Taiwan, as a precondition for talking about the future unification of the PRC and ROC. As a result, both Chinese states establish cultural defences against these alleged threats, and against the diffusion of the values of their enemies which conflict with official beliefs, and to affirm their own central value systems: Chinese socialism interpreted by Máo Zédōng and Dèng Xiǎopíng; and the teachings of Sūn Yīxiān and Jiǎng Jièshí.

The central value systems of the PRC and ROC are located in an "emperor-oriented" socio-political culture – the personality cult of extremely few (living or dead) political leaders. The "emperor" figures, this thesis suggests, are Máo and Dèng in the PRC, and Sūn and Jiǎng in the ROC. Their speeches and ideas are frequently quoted in the respective government reports and official mass media, and are incorporated as part of the contents of ideological and political education in all levels of education.

#### **7.2.2.2 Double Transformation of the PRC and ROC**

This thesis has demonstrated in Chapter Three that the PRC and ROC have undergone two major transformations of their domestic and international relations: between the 1950s and early 1970s; and between the late 1970s and early 1990s.

At the first transformation (1950s - early 1970s), the two Chinese "fortress" states totally redefined their domestic relations with their own citizens, economy and social structures, and their international relations with

other states. In particular, in the 1950s, the revolutionary ruling elites in the PRC and ROC replaced their former ruling classes: the feudal class in the PRC; and those trained by the Japanese colonial administration in Taiwan. Leninist political and state structures were institutionalized in both Chinese countries. The private sector was banned in the PRC, but was allowed to exist in the ROC. The international relations of the PRC and ROC during the first transformation were marked by diplomatic dichotomy: friends or foes. No diplomatic or economic ties, as discussed in Chapters One and Three, were established by the PRC and ROC with their enemies: the US for the PRC; the former USSR and the PRC for the ROC.

At the second transformation (late 1970s - early 1990s), the former domestic and international relations of the two Chinese "fortress" states were partially revised. Under increasing international economic pressure on, and weak domestic economic performance by the PRC, this "fortress" state allowed market forces to emerge under the banner of the "socialist market economy" from the 1980s. The ROC state, despite its economic improvement, suffered from having no recognition of its political and cultural identity by many other states, and attempted to regain its international political support by introducing Western forms of democracy – the institutionalization of opposition – in its political structure after 1987. At the international level, both Chinese states gradually established economic or even diplomatic links with their former enemies.

In relating the "fortress" state and these two social transformations in the PRC and ROC, this thesis agrees with the argument of Martin Carnoy and

Joel Samoff about the central role of the state. They argue that the state is a "principal shaper of social structures" during the transition from revolutionary to post-revolutionary societies in countries including the PRC, Cuba, Tanzania, Mozambique, and Nicaragua.<sup>14</sup> Carnoy also perceives education as a "fundamental instrument of change in revolutionary societies," and argues that the states of these countries stress both economic transformation and the development of a "new sense of nation and history" during the transition stage.<sup>15</sup>

However, in the cases of the PRC and ROC, this thesis rejects Carnoy and Samoff's argument that in the post-revolutionary transition, "economic conditions and changes influence political change."<sup>16</sup> Rather, this thesis has argued that political and economic forces were not mutually exclusive in the two social transformations in the PRC and ROC at both domestic and international levels.

Moreover, this thesis has demonstrated that the "fortress" state of the ROC stressed both economic modernization and the preservation of national identity before and after transforming itself into a newly industrialized country in the late 1980s. The CNP has been the ruling party in the ROC for the last forty-four years. The thesis has argued that the ROC state and its higher education still emphasize the furtherance of economic growth and the struggle for the international recognition of its political and cultural identity (at the moment of writing up this thesis).

In the case of the PRC, whether the argument of Carnoy and Samoff would be valid remains to be seen, because the PRC political structure is still

publicly monolithic and is still dominated by the CCP.

Developed in the higher education systems of the PRC and ROC during these two social transformations were patterns, as discussed in the next section, which were shaped by the respective "fortress" states.

### **7.2.2.3 "Fortress" State Patterns of Higher Education in the PRC and ROC**

The first basic pattern in the higher education systems in the PRC and ROC in the last forty-four years is that these two Chinese "fortress" states are principal socio-political actors in giving and interpreting the respective definitions of higher education on their own terms, and in shaping the curricular and institutional structures of the respective higher education systems over specific periods. Universities and colleges in the PRC and ROC have been state institutions closely supervised and administered by the respective Chinese "fortress" states; and they have not been individual legal entities which have their own rights to administer themselves according to their charters. In other words, the higher education systems in the PRC and ROC were shaped by the respective "fortress" states in accordance with their own economic and socio-political priorities in the world system.

A second basic pattern of the higher education systems in the PRC and ROC in the last forty-four years is that they have exhibited two opposite characteristics: ideological closure; and utilitarian openness. The ideological closure of the higher education system in the PRC or ROC is its relative inflexibility, in curricular and institutional structures, to safeguard certain moral virtues and socio-political values prescribed by leaders for the

preservation of cultural and political identity. In contrast, the utilitarian openness of the higher education system in the PRC or ROC is its flexibility in curricular and institutional structures for the incorporation of fast-growing knowledge (such as science and technology) from abroad for economic purposes.

In other words, the higher education systems in both countries have been agents of the state for both political socialization and economic modernization. The "fortress" states expected their graduates to be technical cadres, but with "ideological reliability" -- the passing of courses in ideological and political education.

For the transmission of socio-political values to students, the two Chinese "fortress" states have established cultural defences in their higher education systems.

Curriculum control over ideological and political education by the Chinese "fortress" states has been an essential means to regulate cultural transmission in their higher education systems for the last forty-four years. These two states have imposed on their students the academic requirements of passing courses of such education before admission and before graduation. Teachers of these courses directed students to focus on the worldviews of the political leaders. Textbooks and reference materials for such courses followed the ideas of the respective political leaders and were used to promote personality cults in both "fortress" states. Examinations (joint college entrance examinations and those offered in these courses) in both states measured students' performance in mastering these ideas over specific periods.

In other words, the curriculum of ideological and political education, this thesis suggests, is a political arena used by the two Chinese "fortress" states to transmit their own official beliefs and to defend against conflicting ones at home or from abroad. This kind of education in both Chinese higher education systems is part of national mobilization in the creation of social cohesion and political harmony amongst their people, particularly the high-level personnel who would be recruited to staff the respective states. Despite student movements in both countries in the late 1980s which indicate that the building of complete political consensus through higher education was not successful, the two Chinese "fortress" states keep on using the formal curriculum to train students with "ideological reliability."

The control of the medium of instruction in the higher education systems (and other levels of education) in both Chinese "fortress" states, this thesis suggests, is another form of socio-political defence at two levels: inter-cultural, and intra-cultural. The national language, Mandarin, of both Chinese countries is adopted as the sole medium of instruction across all levels of education. Despite the needs to have access to foreign science and technology and despite the risk of being cutting off, at least partially, from international academic networks, the adoption of Mandarin in both Chinese states is part of their politico-cultural resistance against the infiltration of foreign cultures in the world system. Languages are cultural products, and are embedded with the values of societies in which they are developed.<sup>17</sup> This means that different languages may encode various cultural messages. The identification of Mandarin as the medium of instruction in the PRC and ROC also means the

preferential transmission of certain cultural messages and at the same time the restriction of others. For both Chinese "fortress" states which have longstanding civilization, the use of the national language as the sole medium of instruction represents part of their cultural identity.

Moreover, Mandarin, one of the spoken forms of Chinese, was adopted as the medium of instruction in the PRC and ROC for communication and domestic socio-political purposes. At the intra-cultural level, the adoption was an educational and political choice. Taiwan was ruled by Japan between 1895 and 1945 and then by the CNP which moved from mainland China after 1949. At the beginning of the rule of the new "colonizer" – the CNP – in Taiwan, Mandarin was mainly the language of mainlanders (less than 15% of the population), and two other local dialects for native Taiwanese (about 85%). Despite facing the pressures from the opposition party, the Ministry of Education still resisted in April 1993 using local dialects as a medium of instruction in the Taiwanese education system.<sup>18</sup>

In the PRC, Mandarin (with a pronunciation system different from Taiwan) was promoted among a huge population comprising 56 nationalities: the majority Han grouping (about 92% of the total population) and 55 minority nationalities.<sup>19</sup> All these nationalities have their own history and cultures, and many have their own written languages. Even amongst Han people who have the same written form of Chinese characters, there are dozens of dialects like Cantonese and Shanghaiese.

Both Chinese states attempted to ease intra-cultural conflicts over economic and political interests by enhancing the social mobility of "local"



people – those with mother-tongue dialects different from Mandarin. In the ROC, more native Taiwanese, as discussed in Chapter Three, were incorporated into the state structures. In the higher education system of the PRC, more places were given to minority students in the 1980s than the 1950s.<sup>20</sup>

Despite linguistic multiplicity and despite the attempts to enhance the social mobility of "local" people in both Chinese countries, all local dialects or native languages as medium of instruction have been banned in both Chinese higher education systems for the last forty-four years. Mandarin is the medium of instruction for the transmission of the central value systems invoked by the ruling elites to students in both Chinese "fortress" states. The centralized educational practice of using the national language, rather than native languages, in classrooms across the PRC and ROC indicates the political domination of the "fortress" states over their people, and particularly of the ruling elites at the capital over ethnic groups for the purposes of strengthening the central leadership.

Cultural transmission in both Chinese "fortress" states has also been conducted within a centralized administration hierarchy dominated by political forces. Top university executives, particularly presidents, are mediators between the state and their subordinates and students, and also implementers of central educational policies on campuses. In other words, university executives can form a power core against the state by, for example, filtering the influences of the state on their universities and colleges. However, both Chinese "fortress" states attempted to reduce their power conflicts with

university executives, particularly presidents, by controlling their appointment, and defining their powers and limits in internal university administration. Moreover, political organs are established on campuses in both states to "supervise" universities executives to implement state policy, coordinate extra-curricular activities for the promotion of the official beliefs and the recruitment of students into the ruling parties.

On the other hand, owing to the economic threat from other states and weak domestic infrastructures of science and technology, the "fortress" states of the PRC and ROC defend their economic interests by institutionalizing utilitarian borrowing of foreign knowledge, particularly science and technology in their higher education systems and economies.

To solve immediate development needs, both Chinese "fortress" states have broadened the respective university curricula by incorporating numerous and ever-changing fields of study, mainly science and technology, from other countries for the training of high-level personnel since 1949. However, both states, as discussed in Chapter Five, injected their own domestic socio-political values into science and technology.

In contrast to the great development of the fields of science and technology in both Chinese higher education systems, their humanities and social sciences have been under-developed for both economic and socio-political reasons. For example, sociology was seen by the PRC government as a "product of capitalism" particularly before the 1980s.<sup>21</sup> Although most of its sociologists were trained in the US, indigenous sociological studies in the ROC were perceived by its government as a leadership challenge particularly

before the lifting of martial law in 1987.<sup>22</sup>

However, the broadening of the university curriculum did not solve one common problem which both Chinese higher education systems faced from the 1970s: their graduates did not meet the needs of the respective economies. The PRC attempted to create economic modernization with higher education by over-specialization and over-emphasis on heavy industry before the 1980s; whereas the ROC adjusted higher education slowly to its industrializing economy.

In balancing the quantity and quality of graduates for economic modernization, the "fortress" state of the ROC expanded the tertiary quota, but without enlarging senior secondary education. The Ministry of Education controlled the academic performance of university graduates by imposing stricter promotion criteria in the early 1990s.<sup>23</sup> As a result, more students were expelled for academic reasons than before. The number of expelled students was increased from 951 (0.42% of the student population) in the second term of 1990-1991 to 2,170 (0.86%) in the first term of 1992-1993.<sup>24</sup>

In contrast to the ROC, the quantity of graduates in the PRC is insufficient for the increasing needs of its incipient industrializing economy. The tertiary graduate ratio as a percentage of the corresponding age group in the PRC between 1987 and 1990 was 0.5, which was lower than the average ratios of developing countries (1.2) and industrialized countries (9.4).<sup>25</sup> All these graduates of both countries, as mentioned earlier in this thesis, have to pass all tests or examinations on ideological and political education. In other words, despite increases in student enrollment and fields of study, both

Chinese higher education systems balanced the production of technical cadres with cultural transmission.

As a result of weak infrastructures of research, both the PRC and ROC used a quicker way to solve their development needs by exchange of students, scholars and experts with countries with advanced science and technology. Both Chinese states have sent thousands of students to pursue graduate studies or teachers to upgrade their qualifications abroad. Some university academics (whom this thesis interviewed in late 1993) in both countries suggested that their countries have the capacity to train research students at home, but would keep on sending postgraduate students to receive advanced training particularly in science and technology in foreign countries. Western countries, notably the US, are main centres for the PRC and ROC to train their high-level personnel. Both Chinese states also invited experts from these countries and conducted joint projects with them. However, both Chinese "fortress" states, particularly during the first transformation period, placed checks on the importation of foreign knowledge by controlling its types and sources, and by exercising visa control over people engaged in international academic exchange activities.

To access foreign science and technology, both higher education systems also offer general courses to train students to master a second language in the last four decades. One of the major foreign languages emphasized in the PRC and ROC was English, except that the PRC stressed Russian before the PRC-Soviet break in the early 1960s. However, in both Chinese countries, reading translated foreign textbooks or reference books was common for both teachers

and students – they thus bypass language barriers.

To conclude, the tasks of the higher education systems in the PRC and ROC have been double: socio-political, and economic. Both "fortress" states have utilized their higher education systems as part of national mobilization to transmit official socio-political values to high-level personnel during the period of training; and on the other hand, as means to import foreign science and technology to solve immediate development problems.

The "fortress" state patterns of higher education in the PRC and ROC provide specific implications for criticizing those theories which the thesis outlined in Chapter One. These patterns also provide general implications for understanding higher education in other developing industrializing countries, particularly those with public monolithic state structures.

The specific and general implications of the thesis will be discussed in sequence in the next two sections.

### **7.3 THE SPECIFIC IMPLICATIONS OF THE THESIS FOR THEORY**

This section firstly offers critiques of theories of educational convergence, modernization, and dependency; and it secondly refines Wallerstein's concepts of the world system and Cowen's ideas of educational isomorphisms.

#### **7.3.1 Critiques of Theories of Educational Convergence, Modernization, and Dependency**

This thesis suggests that the higher education systems of the PRC and ROC exhibit a pattern which contradicts the theories of educational convergence, modernization, and dependency. The curricular and institutional structures

of both Chinese higher education systems are marked by two characteristics: flexibility for the purposes of economic improvement; and relative inflexibility on social-political values.

This thesis argues that all three theories are deficient in explaining the "fortress" state patterns of the higher education systems in the PRC and ROC because these three theories have made a common shaky assumption: the prevalence of international (economic, political and cultural) factors over domestic (economic, socio-political and cultural) ones. In particular, these three theories under-estimate domestic socio-political actors such as the state.

Educational convergence theorists assumed the prevalence of the technology factor embedded in international economic and political relations over domestic factors. They detached higher education from its domestic and international contexts, and reduced developing industrializing countries to a replication of industrialized countries under the influence of rapid knowledge growth, particularly in science and technology.

Although theorists of modernization and dependency set the development of developing countries in context, they also assumed the domination of international (cultural, political and economic) factors over domestic ones. Modernization scholars predicted the dissolution of indigenous cultures of developing countries at the endpoint of the modernizing process; whereas dependency theorists projected a pessimistic picture of underdevelopment in Third World countries as a result of their reliance on core countries.

Thus, theorists of educational convergence, modernization, and

dependency under-estimated the ways in which higher education in any country is framed by and takes its shape from three inter-related contexts: historical, contemporary international, and contemporary domestic contexts. The complicated interplay of these influences, this thesis has argued, does not necessarily produce convergent effects on higher education in the PRC and ROC, nor does it simply transplant those relations of higher education with economy, society and culture in Western countries into these two Chinese countries. To the PRC and ROC which have long-standing cultural traditions and strong national beliefs, the preservation of national identity (as claims of separateness from other peoples) is as important as economic modernization.

Therefore, in the cases of the PRC and ROC, the thesis has proposed a perspective which sees higher education systems as institutional and knowledge enterprises rooted in and affected by historical, domestic, and international contexts. The state is a principal indigenous actor in shaping higher education in accordance with domestic economic and socio-political priorities.

In contrast to theories of educational convergence, modernization and dependency, this thesis has argued that the higher education systems in the PRC and ROC were framed by their historical and cultural continuities. In particular, the struggles for a balance between economic tasks and cultural transmission in their higher education systems are an extension of the tensions between Chinese learning for morality and Western learning for utility in Imperial China and early Republican China before the 1940s. The higher education system of "China" (including Imperial China, the PRC and ROC)

were marked by three characteristics: paternalistic socio-political cultures; the domination of a single central value system; and the political control of the state.

This thesis suggests that, although different generations of ruling elites have come and gone, "emperor culture" – socio-political norms demanding people's loyalty to a few political leaders -- has not ceased in "China." This "emperor culture" was institutionalized in the Leninist political structures of the PRC and ROC with powers centralized in the hands of the respective ruling parties, and particularly their leader(s). The demand for loyalty to emperors in Imperial China was expressed in different forms, but with the same meaning, as in the PRC and ROC in the last forty-four years. Loyalty to the nation in the PRC and ROC was made equivalent to allegiance to the respective ruling parties. Allegiance to the ruling parties in these Chinese countries was frequently personified as loyalty to extremely few political leaders.<sup>26</sup> Up to 1993, the PRC, as in Imperial China, as noted by Gary H. Jefferson, was ruled through a "highly personalized authoritarian system."<sup>27</sup> Whether the institutionalization of opposition in the political structure of the ROC under the leadership of President Lǐ Dēnghuī in the early 1990s will dissolve the "emperor culture" remains to be seen.

This thesis has also demonstrated that, despite several major changes in content for more than two millennia, "China" and its higher education have been publicly dominated by a monolithic, state-supported, official central value system prescribed by the respective Chinese ruling elites. In these "Chinas," moral education and civic education were inseparable from each other. The



teachings of personal values and the duties of citizenship were incorporated into courses for ideological and political education which was intended to transmit the worldviews and political beliefs of the respective Chinese political leaders: Confucian traditions in Imperial China; the teachings of Sūn Yìxiān and the interpretations of his successors in the ROC; and Chinese socialism interpreted respectively by Máo Zédōng and Dèng Xiǎopíng in the PRC. In other words, higher education in these "Chinas" has never been ceased to be a channel for the transmission of socio-political values prescribed by political leaders to students.

The third continuity of higher education in "China" was its domination by indigenous socio-political actors, particularly the state and ruling elites. The role of these actors, as mentioned earlier in the thesis, is also understated in the theories of educational convergence, modernization, and dependency. These socio-political actors in "China" shaped the respective higher education systems, very much on their own, and not international, terms.

Unlike modernization theories (which predicted the dissolution of indigenous cultures), this thesis has argued that, within the "emperor culture" for more than two thousand years, higher education in "China" has been utilized as an agent of political socialization by the respective "fortress" states to transmit to students official values and norms prescribed by the respective Chinese ruling elites.

As in the former USSR, the former East Germany,<sup>28</sup> and Iran, the two contemporary Chinese "fortress" states under the command of numerically few political leaders, linked their higher education systems with official beliefs,

defined the curriculum for cultural transmission, and allocated teachers for ideological and political education. However, this made the two Chinese higher education systems different from other centralized higher education systems in countries like France, and from those decentralized higher education systems in countries like the US and Britain. In these two types of countries, there are no compulsory ideological and political courses for college students.

Through ideological and political education, students in "China" were helped to conform to the socio-political status quo, particularly when they served in the state structures. In other words, the Chinese ruling elites have been using higher education as an agent of the state to create social cohesion and political conformity amongst their people, and thereby maintaining the bases of their political support.

Also unlike dependency theories (which predicted the economic underdevelopment of Third World countries as a result of their reliance on core countries), this thesis has demonstrated that the PRC and ROC, despite their reliance on the science and technology of Western countries, had good economic performances in the early 1990s. Since the 1840s, Chinese higher education has been an agent of the state for the purposes of economic modernization under the impact of international political and economic pressures, rather than an agent to strengthen economic exploitation by foreign countries. The states of Imperial China, the PRC and ROC used higher education and science and technology to help improve their respective Chinese economies. Owing to their weak infrastructures of science and technology, the

states of Imperial China, the PRC (except the 1950s and the early 1960s) and ROC, like Japan and South Korea, imported science and technology from Western countries, and developed economic and academic links with them for practical purposes. The development of utilitarian borrowing of foreign science and technology in the higher education systems and economies of the PRC and ROC did not lead to their economic underdevelopment, but development.

However, the late economic development of the PRC as compared with the ROC, this thesis suggests, can be partly interpreted in terms of the sources of their imported science and technology. The borrowing of science and technology in the PRC and ROC followed their international political and economic relations. The ROC, with American financial and technological aid, developed gradually its economy with emphases on labour-intensiveness in the 1950s to capital- and technology-intensiveness in the 1980s and early 1990s.

In contrast to the ROC, the PRC is still struggling to improve its economy despite its attempt to create economic modernization with the help of higher education from the 1950s. The PRC state attributed this slow pace mainly to the size of its population and the destruction done to the education system during the Cultural Revolution (1966 - 1976).

However, this thesis suggests that the choices of foreign economic and educational models by the "fortress" state of the PRC played an important role in the way its economy developed. For socio-political purposes, the PRC turned to the former USSR and rejected the US in the 1950s. Some university academics (whom the writer of this thesis interviewed) in the PRC insisted

that the borrowing of Soviet economic and educational models by the PRC in the 1950s and 1960s was "necessary" and "appropriate." But this thesis argues with hindsight that the adoption of Soviet economic and educational models by the PRC slowed down its economy in the last four decades despite some increases in economic production in the 1950s and the early 1960s. Like many former socialist countries which followed the Soviet economic model, the PRC stressed heavy industry. However, the economy of the PRC was labour-intensive, with about 80% rural population and with a weak infrastructure of science and technology.

The utilization of the Soviet model of higher education in the PRC, this thesis suggests, also could not help the PRC state train its manpower to cope with the challenge of the global growth of science and technology in the 1970s and 1980s. As in the former USSR in the 1950s, higher education in the PRC was marked by the domination of science and technology over other professional studies (including social sciences) and by over-specialization before the 1980s. Graduates were so specialized that they could not change their careers or gear to the trends of a technological world demanding personnel with inter-disciplinary knowledge and skills.

After turning to Western countries in the late 1970s, the PRC modified its university curriculum for professional studies by stressing inter-disciplinary studies between the branches of science and technology, and between science and technology and other subjects like economics, management and administration. Extra material and human resources are now needed for short courses, in-service courses, or adult vocational education for re-training people

who graduated before the 1980s. Despite the serious brain drain, mentioned in Chapter Six, the PRC keeps on sending people, particularly middle-aged scholars, abroad to update their knowledge and to upgrade their qualifications.

However, to the ruling elites of the PRC and ROC, the importation of foreign science and technology and the incorporation of foreign education models also meant the possible infiltration of those foreign values which were perceived as antagonistic to the respective official value systems. The international educational relations of these two Chinese countries were complicated by their international political and economic relations, and, on the other hand, by their domestic economic and socio-political priorities.

The complexities of the interactions between domestic and international factors in the higher education systems of the PRC and ROC also suggest possibilities for refining Wallerstein's concepts of the world system and Cowen's ideas of educational isomorphisms.

### **7.3.2 Wallerstein's Theory of the World System Revisited**

This thesis has supplemented Wallerstein's theory of the world system with the specificities of the PRC and ROC in two aspects: the introduction of the concept of ruling elite and state-driven central value system; and the understanding of politico-cultural resistance.

#### **7.3.2.1 Ruling Elite and Central Value System**

In addition to using Wallerstein's concept of state, this thesis has also introduced the ideas of ruling elite and the social construction of monolithic,

state-supported, official central value system in this comparative study of higher education in the PRC and ROC. It has also been argued in this thesis that the use of the central value system by the ruling elite in the PRC and ROC as a strategy to resist foreign economic exploitation imposed political limits on state policy formulation when new international and domestic situations emerge.

The economic improvement of the PRC and ROC was a result of the performance of their states. These two Chinese states functioned as defenders of national interests against foreign exploitation. The imposition of high taxes on foreign goods and limitations on foreign exchange are methods to prevent the flight of domestic capital. The officials of the PRC and ROC also used their national belief systems as part of their strategies to resist foreign exploitation.<sup>29</sup>

This thesis, however, suggests that the utilization of a central value system by the ruling elites of the PRC and ROC to resist foreign penetration, in turn, limited the flexibility in the formulation of state policy. The legitimacy of their political leadership derived partly from the respective central value systems. When conflicting values or new practices related to official beliefs were introduced, both Chinese states would offer ideological justification for such changes. The PRC announced that it was in the primitive stage of socialism in the early 1980s. This helped the Chinese communist leaders rationalize their access to the capital and technology of capitalist countries, and their introduction of market forces into the Chinese socialist economy in the late 1980s. The ROC treated the PRC as a chief ideological enemy and banned

its commercial activities with the PRC before the 1980s. From the 1980s, the ROC utilized the cheap labour of the PRC and penetrated its economy. The Taipei authorities rationalized this adjustment of economic practice as a strategy for dissolving the monolithic political structure in mainland China.

The adoption of central value systems as part of the bases for political leadership in the PRC and ROC also created difficulties for the shift of the basis of leadership from moral to institutional supports. In these two countries, charismatic leaders (living or dead) shaped and commanded the respective states. The first-generation ruling elites of the PRC and ROC derived their mandates to rule from the moral claims prescribed in the respective central value systems. The current ruling elites of both countries still rely on these revolutionary claims, despite the attempts to shift the basis of leadership legitimacy to institutional ones (e.g. the legalization of the domination of the CCP in the PRC in 1993; and the direct election of the members of important political organs in the ROC in the early 1990s).

In both countries, this thesis suggests, the shift of the bases of political leadership is further hindered by the structural constraints deeply embedded in the Leninist party and state structures which have been extended from the central authorities to almost all dimensions of people's life for the last four decades. Another obstacle would be the ruling elites' potential resistance to give up the special material privileges and property which accompany party posts in the current socio-political situations. For example, in the ROC, the ruling elite, as estimated in 1993, controls property amounting to about US\$ 3 billion.<sup>30</sup> In the PRC, some members of the ruling elite were allegedly

involved in the exchange of political power for economic benefits. The sons and daughters of many members of the ruling elite hold key party and state positions, and some were directly involved in business enterprises. Moreover, the CCP can sell land which was confiscated from the people in the 1950s to the private sector for monetary return using the principle of developing the "socialist market economy."

### **7.3.2.2 Politico-Cultural Resistance in the PRC and ROC**

This thesis has demonstrated that the pattern of politico-cultural resistance to foreign penetration in the PRC and ROC contradicts that outlined by Wallerstein in two major aspects: the commencement of this resistance with their first-generation leaders; and their increasing toleration of more foreign values.

The politico-cultural resistance against foreign culture in the higher education systems of the PRC and ROC did not start with the masses against the foreign-trained elites, nor with the second or third generation leaders as suggested by Wallerstein. Rather, the fight against the infiltration of conflicting foreign values in the political structure began much earlier than the founding of the PRC and ROC in 1949; for example, in Imperial China, Buddhism was purged in the 9th century, and Christian culture was rejected in the Boxer Rebellions in the late 19th century. Furthermore, in the PRC and ROC, the suppression of the diffusion of foreign values conflicting with the official ones started with the extremely few political leaders of the first generation in 1949: for the PRC, Máo Zédōng (1949-1976); and for the ROC,



Jiǎng Jièshí (1949-1975). The study of their thoughts was incorporated as part of the compulsory courses in these two Chinese higher education systems. The struggles against the diffusion of opposing values were carried by second or third echelons of political executives: for the PRC, Dèng Xiǎopíng (after 1978);<sup>31</sup> for the ROC, Jiǎng Jīngguó (1978-1988), and Lǐ Dēnghuī (after 1988).

This thesis suggests that the politico-cultural resistance against the diffusion of opposing values into the higher education systems and society of the PRC and ROC was led by the respective "fortress" states, rather than initiated from the masses. The ruling elites of the PRC and ROC, like Japan, acted as guardians of national beliefs and attempted to utilize some existing national values, like faithfulness to the teachings of national leaders and the realization of the ideal world prescribed by them, to promote national development. On the other hand, these ruling elites of the PRC and ROC rejected only those foreign values which were perceived and designated by national leaders as antagonistic to official beliefs. The PRC accepted Russian values in the 1950s, and some of the market values of capitalist countries after the late 1980s, although Western ideas of individualism and democracy have been rejected in the PRC since 1949. The "fortress" state of the PRC currently condemns the spread of "extreme individualism" and "profit-orientation" amongst those people who sacrifice the state's interests for their own as a "negative" result of the institutionalization of market mechanisms.<sup>32</sup> The "fortress" state of the ROC still refuses communist values, and does not accept all Western values. For example, although the form of Western democracy has been instituted in the political structure of the ROC, its politics is still

paternalistic and is built up on massive relational, rather than institutional, networks.

The selective rejection of foreign values by higher education of the PRC and ROC also contradicts Wallerstein's prediction about the increasing politico-cultural resistances against core countries by non-core ones as leaders of new generations come into power.

In contrast to Wallerstein, this thesis suggests that as more party leaders of the first generation pass away, the degree of the toleration of conflicting value system in higher education of the PRC and ROC has increased. For example, the private sector of higher education, formerly abolished in the early 1950s, was allowed to re-emerge in the early 1990s. From the late 1980s, the ROC allowed the publication and sale of Marx's writings, and their display in public and university libraries in Taiwan. Nevertheless, the recent toleration of previously banned practices in the PRC and ROC does not necessarily mean the replacement of the original official value system with a conflicting one. The two Chinese "fortress" states still emphasize the importance of their respective national beliefs in policy formulation.

The specificities of the PRC and ROC also suggest that Cowen's concept of educational isomorphisms is not precise in understanding higher education in both countries.

### **7.3.3 Cowen's Concept of Educational Isomorphisms Revisited**

This thesis has supplemented Cowen's concept of educational isomorphisms in revolutionary states with the specificities of the tension between cultural

transmission and economic modernization in higher education in the PRC and ROC in two major aspects: the relation between revolution and this tension; and the struggles between intellectuals (including university academics) and the state.

### **7.3.3.1 Revolution and Educational Tension**

The analysis of the tension between the preservation of national identity and economic modernization in the PRC and ROC shows that this tension in the Chinese higher education system preceded the two social revolutions in China (1911 and 1949). This contradicts the relations between revolution and this kind of tension as suggested by Cowen. He assumes that revolution as a creation of new socio-political structures leads to a redefinition of educational aims and policies, and that the redefinition includes this tension as part of the revolutionary process.

In contrast to Cowen, the thesis suggests that this tension in the PRC and ROC is not necessarily a result of social revolutions, but a result of an ongoing social transformation. This thesis has demonstrated that this tension does not disappear in both Chinese higher education systems even after the partial revision of the revolutionary definitions of their international relations with other countries, and their domestic relations between the ruling party, the state, the people, economy and society after the 1970s. Despite the reliance on science and technology from Western countries and despite the introduction of market forces, the ruling elite of the PRC still insists that the CCP is the only ruling party and that "only socialism can save China ... and develop China."<sup>33</sup> The ROC, despite having a newly industrialized economy with per

capita GNP of more than US\$ 10,000, still attempts to pursue international recognition of its cultural and political identity. Common to higher education, in pre-1949 China, the PRC and ROC, were their attempts to preserve those "core" moral virtues and socio-political values and relations which were deemed important to the definition of national identity and to the maintenance of political legitimacy and political support.

### 7.3.3.2 Struggles between Intellectuals and the State

This thesis further advances Cowen's idea of educational isomorphisms by introducing a pair of socio-political actors – intellectuals and the state – as important components in the creation of educational patterns in the PRC and ROC. This thesis suggests that higher education is a political arena for struggles between intellectuals (including university academics and students) and the state, and that the political locations of intellectuals in countries like the PRC and ROC with monolithic political structures are different from Western countries marked by political pluralism.

Intellectuals, this thesis suggests, are important actors in transforming the economic or socio-political structures in their societies. Intellectuals, as defined by Robert J. Brym, are those (such as scholars, artists, reporters, and students in tertiary institutions) "who, occupationally, are involved chiefly in the production of ideas."<sup>34</sup> These ideas, this thesis further suggests, are particularly related to public issues (like social, environmental or political affairs), and are expressed through public channels (like interviews in TV, publication in the form of books or articles in newspaper, or performance on

a stage).

However, the political attitudes of intellectuals towards the state are not necessarily dipolar – to support or to fight against the state as suggested by Robert Michels.<sup>35</sup> This thesis suggests that the relations between intellectuals and the state can be broadly classified into three major categories: a minority of intellectuals who are incorporated as state officials by the ruling elite into the political and state structures; a silent majority of intellectuals who observe the socio-political norms prescribed by the ruling elite, but who may discuss public issues on private occasions; and a minority of opposition intellectuals who openly challenge, not necessarily on a regular basis, the policy and leadership of the ruling elite.

Scholars in "China" (Imperial China, the PRC and ROC) have never been able to survive as a public independent force apart from the state structure. In contrast to intellectuals in Britain, France<sup>36</sup> and Germany,<sup>37</sup> university academics, like their students, in "China" were requested to conform to socio-political norms prescribed by the ruling elites. University academics in both Chinese "fortress" states can influence policy formulation by serving "within" the state.<sup>38</sup> However, most of the state officials or university academics who served and survived in the political and state structures of the PRC and ROC, this thesis suggests, were those who would not openly express ideas contradictory to the respective Chinese ruling elites. This is owing to different kinds of relations established between higher education, the state and the rulers in both countries.

First of all, one of the traditions of higher education in "China" was to

recruit high-level personnel to staff the government: the literati in Imperial China; the state and party cadres in the PRC; and the technocrats in the ROC. This educational practice in "China" is a reflection of the mentality of Chinese scholars to serve the state, and can be summed up in a Chinese saying: "to become state officials after being excellent scholars" (xué ér yǒu shì zé).

In the PRC, intellectuals are incorporated by the CCP into the massive state structures across the country. Some of the basic political requirements for state officials are to support the CCP and to persist in the socialist road.

Although the ROC government, as mentioned in Chapter Three, has been known as technocratic since the 1950s, the state officials basically formulated and implemented state policy within the framework prescribed by the Taiwanese ruling elite. The current Prime Minister of the ROC, after being elected as a Deputy Chairman of the CNP, admitted that it is the duty of the ROC government to implement the policy of the ruling party, the CNP.<sup>39</sup> In the last forty-four years, the education policy of transmitting the revolutionary ideals and values prescribed by the political leaders was implemented and supervised by Ministers of Education, although most of them received higher degrees from Western countries and were formerly university academics. The current Minister of Education, Guō Wéifān, was also elected to be a member of the Central Committee of the CNP in the 14th Party Congress in 1993. Many former and current university presidents were also elected in the same Congress. Even six of the seven "rebels" of the CNP who formed the New Party just before the Congress are university academics. These "rebels", though criticizing the administration under President Lǐ Dēnghuī, attempted

to revive the CNP,<sup>40</sup> but still played, this thesis suggests, according to the rules and terms defined by the CNP.

Secondly, the influence of university academics on state policy in "China" is further limited by the fact that higher education institutions have never been independent legal entities governed with their own charters. The state is not only their patron in financial backing (except private universities or colleges), but also the definer of their powers and limits. As in Germany and Switzerland,<sup>41</sup> national and provincial governments of the PRC and ROC are the legal entities of higher education institutions, and the appointment of their presidents are subject to state endorsement. Although proposals were recently put forward by both Chinese states to change this pattern in the early 1990s, how much autonomy in administration and curriculum individual higher education institutions will have remains to be seen.

However, up to 1993, the relations between higher education, the state and the ruling party have not been totally separable in the PRC and ROC. Political organs of the ruling party are still operating on university campuses in both countries. Despite the lifting of martial law in the ROC after 1987, no opposition party is allowed to establish its organizations on campus as the CNP does. University academics and students in both countries have been major targets for recruitment into the respective ruling parties. It is not uncommon for university academics, particularly those at the top of the administrative hierarchy, to have another post in the party structures whether outside or on campuses.

Finally, unlike the former West Germany,<sup>42</sup> there are no job security

in the higher education systems of the PRC and ROC to protect scholars, particularly those in the highest administrative posts, who express views contradictory to the political leadership. In the PRC, the dismissal of university presidents and academics for political purposes is not uncommon. The suspension of Fāng Lìzhī as the Vice-president of the Chinese University of Science and Technology in the late 1980s was one of many similar cases. Although annual contract systems for teachers were recently introduced, the conditions of reappointment include both job performance and political attitudes towards the ruling party.

As in the PRC, no job security is granted to university academics in the ROC according to the existing biannual contract system.<sup>43</sup> Such a contract system creates no "space" for university academics, if they want to keep their posts, to challenge and express ideas contradictory to their internal superiors and external party leaders. The University Act passed in December 1993 introduces the practice of tenure in higher education. How this new practice will affect the influence of university academics on the state remains to be seen.<sup>44</sup>

From the late 1980s, the political treatment of opposition intellectuals differed in the PRC and ROC. Before 1987, both countries suppressed opposition intellectuals, and banned the publication of their works. In the ROC, opposition intellectuals, like Chèn Qǔyīng (former professor of the National Taiwan University) and his colleagues, who publicly criticized the CNP and the state, were dismissed from their teaching posts for political reasons in the late 1970s. Chèn was then "exiled." Chèn was permitted to



return to visit Taiwan in April 1993 after 14 appeals to the Taipei authorities.<sup>45</sup> This could never have happened before the beginnings of political pluralism in Taiwan in the late 1980s. However, this does not mean that the teachings of Sūn Yǐxiān and Jiǎng Jièshí are abandoned. Their ideas are still taught in all levels of education in the ROC. In contrast to the ROC, opposition intellectuals of the PRC during the student movement in 1989 remain fugitives and dissidents in countries other than their motherland.

Thus, in exploring the specific implications for re-thinking the ideas of Wallerstein on world system and Cowen on educational isomorphisms, this thesis has introduced the concepts of ruling elite, monolithic, state-supported, official central value system, state-led politico-cultural resistance, and intellectuals in understanding the struggles between cultural transmission and economic modernization in the higher education systems of the PRC and ROC.

Finally, some suggestions are made about the broader implications of the work of this thesis in understanding higher education in other developing industrializing countries.

#### **7.4 THE BROADER IMPLICATIONS OF THE THESIS FOR HIGHER EDUCATION IN DEVELOPING INDUSTRIALIZING COUNTRIES**

This thesis has proposed that the higher education systems of the PRC and ROC are institutional and knowledge enterprises rooted in and affected by historical, domestic, and international contexts. This thesis suggests that this perspective can be tested in future research on the struggles between cultural transmission and economic modernization in the higher education systems of other developing industrializing countries.

One sub-group of these countries is that which are similar to the PRC and ROC (for example, probably Cuba, Iran, Iraq, and North Korea) with monolithic, state-supported, official central value systems.

To obtain access to the rapid growth of foreign knowledge, particularly in science and technology for economic modernization, these higher education systems will be marked by an increase in specializations, often open to student choice, and by the rapid establishment of research institutes and graduate schools.

In contrast, these higher education systems will institutionalize the preservation of national identity (as claims of separateness from other peoples and nations). Such institutionalization will include the use of the national language as the medium of instruction, the introduction of compulsory courses on the version of national history prescribed by political leaders, the studies of their thoughts, the incorporation of the publicly defined national cultural legacy, moral education or the national religion in the formal curriculum. In general, decision-making power over the formulation and implementation of political and ideological education will be centrally controlled by the government. In other words, direct political control over the curriculum for cultural transmission is an essential characteristic of higher education in countries in this sub-group.

More generally, in a wider range of developing industrializing countries, there is, this thesis further suggests, heterogeneity among the higher education systems in their balance between the training of technical cadres and cultural transmission. The spectrum ranges from countries which emphasize

the economic imperative more than cultural transmission to those which stress the maintenance of national identity more than economic improvement.

At one end of the spectrum are those countries or city-states whose higher education emphasizes the supreme importance of its economic functions. Examples of these can be seen in the higher education systems of Hong Kong<sup>46</sup> and Singapore.<sup>47</sup> The majority of citizens in these two countries are predominantly Chinese. However, English is superimposed as one of their official languages alongside Chinese both because of the colonial legacy and entrepreneurial needs. No compulsory courses on moral education or national history are imposed on higher education in these two countries. The task of the transmission of social and cultural values through the informal curriculum was entrusted by these two governments only to primary or secondary schools, and mainly from the 1980s.<sup>48</sup>

At the other end of the spectrum are examples offered by higher education in the PRC during the Cultural Revolution between 1966 and 1977, and in Iran between 1978 and 1989.<sup>49</sup> In these periods, the PRC and Iran, affected by domestic political struggles, strove to maintain their national identity against Western influence. The state of the PRC put "politics in command" in higher education, whereas the Iranian state put "religion in command";<sup>50</sup> at the expense of domestic economic development. Both countries gave a lower priority to the economic task of higher education in training technical cadres including scientists and technologists.

Between these two ends of the spectrum are those countries whose governments stress the dual functions of higher education: the training of

professional manpower and the propagation of national values to students. Examples of these are South Korea, Malaysia, and Saudi Arabia.<sup>51</sup> Higher education in these three countries aims at the training of technological cadres to improve their economies. However, compulsory courses such as national history and national ethics have been established in South Korean higher education to help students preserve their "cultural identity."<sup>52</sup> Religious courses have been established in Malaysian higher education institutions to transmit the Koranic worldview to Muslim students, and to help them to resist "secularization" in the process of economic modernization.<sup>53</sup> All students of higher learning in Saudi Arabia are also compelled to take religious courses throughout their study.<sup>54</sup> There is a preferential allocation of students for Islamic studies, particularly for higher degrees in Saudi Arabia.<sup>55</sup>

The divergences between the higher education systems in developing industrializing countries and Western countries, this thesis suggests, partly arise from differences in their contexts which shaped their higher education systems. In particular, the relations of higher education with economy, society and culture in developing industrializing countries differ from those in Western countries in three aspects: the chronological sequence of resistance to the technology-oriented educational model; the level of struggles against technology-oriented culture; and challenges to political leadership.

Higher education in many developing industrializing countries, it is suggested, did not offer resistance to the initial incorporation of foreign disciplines of science and technology. This was contrary to Western European societies in which their universities impeded the emergence of professional

and technological education in the 19th and early 20th centuries.<sup>56</sup>

Developing industrializing countries, this thesis observes, attempt to improve their economies by importing science and technology (directly or indirectly) from industrialized countries. The governments of developing countries believe that the production of technical cadres would contribute to industrialization. This has led to an influx of resources including knowledge and personnel from industrialized countries, particularly Western ones. The curriculum in the areas of practical knowledge is diversified into numerous specializations. The infrastructure and enrollment of higher education are also expanded in those developing countries (like Hong Kong, Jordan and Singapore)<sup>57</sup> which can financially afford such vast investment. The training of technical cadres for economic improvement has become one of the major tasks of higher education in developing countries.<sup>58</sup> However, the reliance of developing countries on Western knowledge has led to inter-cultural clashes in their value systems with Western ones.

Higher education in developing industrializing countries differed from Western countries, this thesis secondly suggests, in their levels of struggles against technology-oriented culture: for Western countries, intra-cultural; and for developing countries, inter-cultural.

The technology-oriented culture was evolved endogenously within Western societies. The resistance by some academicians against this culture at its emergence in Western countries, e.g. the United Kingdom,<sup>59</sup> in the late 19th century was an intra-cultural conflict between long-standing and newly emerging institutions (and institutional cultures in universities). However,

developing industrializing countries usually did not reject the importation of Western science and technology per se, but those Western political and moral values which were deemed challenging to the creation and maintenance of national identity by local leaders.

The resistance of developing countries to accepting Western culture, it is argued in this thesis, is an inter-cultural clash between the value systems of developing and Western industrialized countries. The political leaders of developing countries usually interpret this clash as the withering of local traditional culture; or "secularization" of traditional religion by the "pernicious effects of various decadent aspects of contemporary Western culture."<sup>60</sup>

This proposition can be exemplified in the cases of China and Japan in the 19th century, countries in Southeast Asia after the World War II,<sup>61</sup> and Iran particularly under the rule of Ruhollah Khomeini from 1979.<sup>62</sup> The South Korean Ministry of Education still regarded Western culture as "alien" in 1990.<sup>63</sup> Tham Seong Chee interprets the resistance of Asian countries against part of Western culture as a confrontation between the value systems of Asian and Western countries, i.e., between the "materialist-utilitarian-instrumental" values of Western societies and the "moral-ethical" values of Oriental societies.<sup>64</sup> Willy Wielemans and Pauline Chan further treat this inter-cultural clash as the undermining of the customary values and traditional order of Asian countries by the "technological-economic-industrial activities" imported from Western countries.<sup>65</sup>

Thirdly, higher education in developing industrializing countries and developed ones, it is suggested in this thesis, differed in the political

consequences of the clashes between traditional and technology-oriented cultures. Western governments have not faced a threat to their political leadership by the technology-oriented culture because it was evolved endogenously, rather than being coming from overseas.

In contrast, the threat of a potential change offered to political structures in developing industrializing countries by Western cultures, it is suggested, is a factor which deepens the resistance of developing countries to Western cultures. The transplantation of Western knowledge in many developing countries is likely to challenge the political leadership of the local leaders. Philip Altbach has noted that universities are "politically important institutions and are often centres for dissent and intellectual ferment."<sup>66</sup> This thesis adds the idea that universities are also politically sensitive arenas in which socio-political values embedded in knowledge of lending countries interact with those of borrowing countries. The introduction of mass higher education and Western educational ideas and practices into developing industrializing countries creates a new socio-political structure in which technocrats and middle-class people demand power sharing with existing local leaders.

In particular, the existing political elite in developing industrializing countries, as argued by James S. Coleman, was threatened with displacement by a new class of technocrats.<sup>67</sup> The existing political elite, though less educated, was politically dominant, and attempted to defend their leadership. In contrast, the technocrats as a "better-educated" political elite no longer perceived the revolutionary or founding ideals as the bases of the legitimation of the existing leaders.

Moreover, the domination of the existing political elites in developing industrializing countries was, as noted by Coleman, further weakened by the increasing participation of the educated masses in political activities.<sup>68</sup> The masses demanded "rational-legal norms for governmental behaviours," respect for "democratic values," and "the minimum sense of encouraging mass involvement in political activities."<sup>69</sup>

Thus, higher education in developing industrializing countries evolved in contexts different from Western countries. The inter-cultural conflicts and political threats offered by Western culture in many developing industrializing countries, this thesis suggests, complicate the cultural and economic tasks, rather than simply dissolve the indigenous cultures, or subordinate cultural transmission to the production of technical cadres, in their higher education systems.

## 7.5 FINAL WORDS

This thesis has argued in considerable detail the propositions that since 1949, the higher education systems of the PRC and ROC have been marked by the tension between cultural and political identity, economic modernization, and foreign influences; that these tensions arise from the special circumstances of the PRC and ROC: they have common history up to 1949, but developed different social systems and different international relations; and that the "fortress" states of the PRC and ROC are adjustors of the balances between their external relations with other countries, their maintenance of cultural identity and political conformity at home, and the different terms on which



they defined modernization.

However, this thesis has not discussed the effects of higher education on the states of the PRC and ROC, and their students' reception of the respective central value systems over specific periods. These issues are worth further research in Chinese education.

Moreover, at the moment of finishing this thesis, the PRC and ROC are still facing new international and domestic challenges. In the international arenas, the PRC is defending itself against the US's alleged charge on the issues of, for instance, human rights and weapons proliferation. Domestically, the PRC economy is suffering from overheating (including a double-digit inflation rate, speculative investment and serious corruption) after the incorporation of market mechanisms in the 1980s.<sup>70</sup> There are signs indicating that the CCP has begun to resume its control over the economy. For example, in July 1993, Zhū Róngjī, Vice-Premier and a member of the Politburo, was assigned to replace the former Director-General of the China's Central Bank.<sup>71</sup> The Politburo also launched anti-corruption campaigns within party and state structures on a national scale.<sup>72</sup> In November 1993, the Central Committee of the CCP decided to launch a national campaign across the party and state structures to study the selected speeches of Dèng Xiǎopíng (delivered between 1982 and 1992) as in the era of Máo Zédōng. Higher education institutions were also required to improve their ideological and political courses in accordance with this decision.<sup>73</sup>

In the ROC, both the ruling and opposition parties are looking forward to rejoining the United Nations. In July 1993, the preparatory committee for

the 14th Party Congress of the CNP passed proposals for the revision of the party constitution. According to the proposed revised version, the CNP would no longer call itself a revolutionary party, but a "democratic party."<sup>74</sup> Yet the "revolutionary spirit" of the CNP was re-affirmed in the 14th Party Congress.<sup>75</sup> The Three People's Principles remain as the central value system of the CNP and the ROC, and the political structure created by the revolutionary leaders of the first generation is preserved in the ROC. However, the political arenas in Taiwan, this thesis suggests, will be complicated by the emergence of the third party, the New Party, comprising rebels from the CNP, and the Taiwanese higher education by the opposition party and the New Party. Higher education in the ROC, as suggested by Yang Kuo-Shih (the Director of the Department of Higher Education of the Ministry of Education whom the writer of this thesis interviewed in October 1993), will be further complicated by the increasing demands of students as a "third force" to participate in university administration.

How the balance between the cultural and economic tasks of the higher education systems in the PRC and ROC will be affected by these respective recent developments remains to be seen. "In the final analysis," educational convergence may occur; dependency theories may begin to explain these two Chinese states;<sup>76, 77</sup> and their indigenous cultures and central value systems may begin to dissolve.<sup>78</sup> But for the moment, it is suggested that the theorizing in this thesis offers a more delicate understanding of some very complex relationships than these classical theories.

### Endnotes for Chapter Seven

1. In 1990-1991, the numbers of students awarded PhD, master and bachelor degrees in the ROC were respectively 518, 6,409, and 49,488. See *Zhōnghuá mínguó jiàoyù tǒngjì (Míngguó 81 Nián)* (Educational Statistics of the Republic of China, 1992) (Taipei: Ministry of Education, 1993), p.115.
2. In 1990, the numbers of students awarded PhD, master and bachelor degrees in the PRC were respectively 1,982, 32,090, and 307,865. Department of Planning and Construction, State Education Commission, *Achievement of Education in China: Statistics, 1986 - 1990* (Beijing: People's Education Press, 1991), pp.28, 44.
3. In 1991, the numbers of students gaining PhD/DPhil, other higher degrees, and first degrees in the United Kingdom were 8,337, 26,264, and 79,637. It should be noted that overseas domiciled students accounted for 41% of those awarded with higher degrees. See *University Statistics, 1991-92, Vol. 1: Students and Staff* (Cheltenham: Universities' Statistics Record, 1993), p.61.
4. In 1990, the numbers of students awarded PhD, master and bachelor degrees in the US were respectively 38,238, 323,844, and 1,049,657. See National Center for Education Statistics, *Digest of Education Statistics, 1992* (Washington, D.C.: United States Department of Education, Office of Educational Research and Improvement, 1992), p.170.
5. In 1990, the numbers of students awarded PhD, master and bachelor degrees in Canada were respectively 2,672, 17,618, and 109,814. See *Education in Canada: A Statistical Review for 1990-91* (Ottawa, Ontario: Statistics Canada, 1992), p. 153.
6. These enterprises and companies enjoyed tax exemption for selected products, for example, in the Húnán Province. Many companies were established under each enterprise. For example, Běijīng University ran 9 companies between 1986 and 1992. See "Miǎnshǒu Shíer Xiàng Shuì" (Twelve Tax-free Items), in *Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper), 7 January, 1993, p.1; and "Běidà De Xīn Bàn xué Fāngxiàng" (New Directions in the Running of Běijīng University), in *Wénhuì Bào* (Hong Kong), 22 November, 1992, p.2.
7. "Xiàhǎi" was a word coined by the PRC press in the early 1990s to describe people who changed their career partially or completely and earned their living from engaging in commercial activities. For example, in early 1992, the teachers of the Electronic Engineering Department of the Tiānjīn University were organized by the school authorities to sell their research results in the fairs of science and

technology in the Provinces of Shāndōng and Jiāngsu. In return, these teachers obtained 930 thousand yuan for research fund. In the Sìchuān Province, some teachers of the 60 higher education institutions reportedly worked in factories and mines. See *Guāngmíng Rìbào* (Guangming Daily), 31 May, 1992, p.1; and "Shànghǎi Gāoxiào Kēyán Zhòngxīn Zhuǎnyí, Miànxiàng Jīngjì Jiànshè Zhǔ Zhànchǎng" (Higher Education Changes its Focus on Science and Technology Research, and Orients towards Economic Construction), in *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 6 February, 1993, p.1.

8. The private sector of higher education in the PRC was abolished in the early 1950s. However, under the drive of market forces in the late 1980s, there were 17 private full-time universities registered with the PRC government (up to early 1993). These universities were marked by "three highs" – high tuition fees, highly qualified teachers, and high standards of teaching. However, these private universities cannot grant degrees (at the moment of the writing up of this thesis). See "Private Schools Thriving in China," *Míng Bào* (Ming Pao Daily), 15 April, 1993, p.58.
9. Of these aspects, only the first one, this thesis suggests, means power devolution to higher education, while the other three do not. According to Guō, the Ministry of Education was testing the model of the "selection of presidents of public universities" by university academics mainly in their own terms (which has been discussed in Chapter Four). Some deans or heads of colleges were selected by their academics. This kind of the selection of top university executives never occurred before the official formation of opposition forces in the political structures before the 1990s. For the summary of Guō's speech, see *Gāojiào Jiǎnxùn* (Higher Education Bulletin), No. 27 (10 June, 1993), p.1.
10. For details about the "Supplementary Regulations of the Assessment of the Technological and Professional Publications of Teachers from Universities, Independent Colleges and Special Schools" promulgated in October, 1993, see *Gāojiào Jiǎnxùn* (Higher Education Bulletin), No. 32 (10 November, 1993), p.4.
11. *Gāojiào Jiǎnxùn* (Higher Education Bulletin), No. 27 (10 June, 1993), p.1.
12. The term, "fortress," was suggested as a theme to pursue by Dr. Robert Cowen in his tutorial with the author of this thesis in early 1993.
13. "Preamble," in *Constitution of the People's Republic of China* (Beijing: Foreign Languages, 1987), p.3.
14. Martin Carnoy and Joel Samoff, "The Search for Method," in the book edited by them, *Education and Social Transition in the Third World* (Princeton, New Jersey: Princeton University Press, 1990), p.12.

15. Martin Carnoy, "Education and the Transition State," in Martin Carnoy, and Joel Samoff, *Education and Social Transition in the Third World* (Princeton, New Jersey: Princeton University Press, 1990), pp.63-96.
16. Martin Carnoy and Joel Samoff, "The Search for Method," in the book edited by them, *Education and Social Transition in the Third World* (Princeton, New Jersey: Princeton University Press, 1990), p.12.
17. For the discussion about the relations between language, culture and society, see H. H. Stern, *Fundamental Concepts of Language Teaching* (Oxford: Oxford University Press, 1983), Chapter 10.
18. *Zhōngyāng Rìbào* (Central Daily News, international edition), 4 April, 1993.
19. According to the 1990 census, the ethnic group Han has a population of 1.042 billion out of 1.134 billion. See *Zhōngguó Rénkǒu Tǒngjì Niánjiàn*, 1990 (China Population Statistics Yearbook, 1990) (Beijing: Science and Technology Documents, 1991), p.15.
20. The number of minority students enrolled in the higher education system of the PRC was 1,285 (0.93% of the total student enrollment) in 1950, and 118,735 (6.06%) in 1987. However, the number of minority students in those higher education institutions administered directly by the State Education Commission was still small: for example, 570 minority students in 10 such institutions in 1988. See Qǐhuāng Xiè, *Zhōngguó Mǐnzú Jiàoyùshǐgāng* (History of Education for Chinese National Minorities) (Quangxi: Quangxi Educational Press, 1989), pp.217-218; and Jian Li (Gen. ed.), *Zhōngguó Jiàoyù Niánjiàn*, 1989 (Yearbook of Education in China, 1989) (Beijing: People's Education, 1990), p.251.
21. Lùxī Chéng and Yàochāng Sū, "The Past and Future of Sociology in Mainland China," in Yǒngměi Cài, and Xīnhuáng Xiāo (eds.), *Shèhuìxué Zhōngguóhuà* (The Sinification of Sociology) (Taipei: Jùliú, 1986), pp.255-270.
22. Xīnhuáng Xiāo, "Sociology in Taiwan," in Yǒngměi Cài, and Xīnhuáng Xiāo (eds.), *Shèhuìxué Zhōngguóhuà* (The Sinification of Sociology) (Taipei: Jùliú, 1986), pp.271-310.
23. Before 1991, students were expelled if they failed two-thirds of the total units or more in the same semester, or half of total units or more in two consecutive semesters. From 1991-1992, stricter academic requirements were imposed on students. They would be automatically expelled if they failed half of the units taken in any semester. For the criteria of expelling students before 1991, see Articles 29 and 30 in the "Regulation Concerning the Status of Students of Universities and Independent Colleges," in *Gāoděng Jiàoyù Fǎguī Xuǎnjí* (Selection of the Regulations

- of Higher Education) (Taipei: Department of Higher Education, Ministry of Education, 1990), p.135. For the new criteria of expulsion, see Article 30 of the "Regulation Concerning the Academic Status of Students of Universities and Independent Colleges" which was amended in September, 1991. The amended "Regulation" is in *Guólì Jiàoyù Zīliào Guǎn Guǎnxùn* (Bulletin of National Educational Information Institute), No. 12 (October 1991), pp.26-27.
24. *Gāojiào Jiǎnxùn* (Higher Education Bulletin), No. 24 (10 March, 1993), p.3.
  25. United Nations Development Programme, *Human Development Report*, 1993 (New York and Oxford: Oxford University Press, 1993), pp.144-145.
  26. These extremely few political leaders, as suggested earlier in this thesis, were Máo Zédōng (before 1976) and Dèng Xiǎopíng (after 1978) in the PRC; and Sūn Yìxiān (1910s-1920s), Jiǎng Jièshí (1949-1975), and Jiǎng Jīngguó (1980-1988) in the ROC.
  27. Gary H. Jefferson, "The Chinese Economy: Moving Forward," in William A. Joseph (ed.), *China Briefing*, 1992 (Boulder, Colorado: Westview, 1993), p.53.
  28. In the higher education system of the former East Germany, students were required to take compulsory courses of ideological and political education under the heading of general basic education. Included in these courses were dialectical and historical materialism, political economy, scientific communism, and the history of the working-class movement. See H. J. Schulz, *Higher Education in the German Democratic Republic* (Bucharest: CEPES, 1983), pp.17-19.
  29. In spite of their training in Western countries, particularly the US, most of the state technocrats of the ROC were active defenders of national interests embedded in the national values prescribed by Sūn Yìxiān and Jiǎng Jièshí. The ROC's values include growth with equity, and the improvement of living standards of the people. In the PRC, Máo Zédōng and Dèng Xiǎopíng strongly repudiated any imperialist economic aggressions against their country, and claimed to uphold the principle of equity and mutual benefits in economic affairs.
  30. Tony Emerson, and George Wehrfritz, "An Echo of Revolt," in *Newsweek*, 23 August, 1993, pp.34-35.
  31. Dèng Xiǎopíng was one of the revolutionary leaders of the first generation, but he became the highest political executive in the PRC's state structure only after Máo's death in 1976.

32. For example, see the Editorials of the *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 26, 28 August, 1993. See also Paragraph 49 of "The Decision of the Central Committee of the Chinese Communist Party Concerning Several Questions about the Construction of the Socialist Market Economy." The Decision was passed on 14 November, 1993, and is in *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 17 November, 1993, pp.1-3.
33. See the speech of Jiāng Zémín who promoted in November, 1993 the study of the third volume of Dèng Xiǎopíng's speeches. The Jiāng's speech is in *Rénmín Ribào Hǎiwàibǎn* (People's Daily, overseas edition), 4 November, 1993, p.1.
34. Robert J. Brym, *Intellectuals and Politics* (London: George Allen & Unwin, 1980), p.12.
35. Robert Michels suggested that there are two classes of intellectuals: "those who have succeeded in securing a post at [sic.] the manger of the state, whilst the others consist of those who ... have assaulted the fortress without being able to force their way in." This quotation is taken from Ron Eyerman, Lennart G. Svenson, and Thomas Söderqvist, "Introduction," in the book edited by them, *Intellectuals, Universities and the State in Western Modern Societies* (Berkeley, California: University of California Press, 1987), p.3.
36. In Western European countries which are marked by political pluralism, intellectuals outside the state sector are not required to conform to certain socio-political norms prescribed by their political leaders. Owing to different historical backgrounds, academics as intellectuals outside the state sector in France challenged the state leadership more on political issues from Dreyfus Affairs in the late 19th century, and those in Britain more on social problems. See Stefan Collini, "Intellectuals in Britain and France in the Twentieth Century: Confusions, Contrasts – and Convergence?" in Jeremy Jennings (ed.), *Intellectuals in Twentieth-Century France: Mandarins and Samurais* (New York: St. Martin's Press, 1993), pp.199-225.
37. In Germany during the Weimar period (1918-1933), intellectuals intervened the state affairs by joining political parties in such a socio-political context which permitted political pluralism. See Stephen Lamb, "Intellectuals and the challenge of power: the case of the Munich 'Räterepublik'," and Wilfried van der Will and Rob Burns, "The politics of cultural struggle: intellectuals and the labour movement," respectively in Anthony Phelan (ed.), *The Weimar Dilemma: Intellectuals in the Weimar Republic* (Manchester: Manchester University Press, 1985), pp.132-161; and pp.162-201.

38. Neil J. Smelser suggests that higher education can influence the policy formulation of the state in two possible ways. The state may incorporate the methods and knowledge produced by university academics into reference materials for policy formulation. To serve the state on a full-time, part-time, or occasional basis is another channel for academics to influence the state. See Neil J. Smelser, "Major Dimensions in the Relations between the State and Higher Education," in International Seminar on Higher Education in Asia (4th: 1988, Hiroshima), *The Role of Government in Asian Higher Education Systems: Issues and Prospects* (Hiroshima: Research Institute for Higher Education, Hiroshima University, 1988), pp.13-15.
39. *Zhōngyāng Rìbào* (Central Daily News, international edition), 20 August, 1993, p.1.
40. For the policy of the New Party, see Tony Emerson, and George Wehrfritz, "An Echo of Revolt," in *Newsweek*, 23 August, 1993, pp.34-35.
41. B. Kelm and U. Teichler, "Federal Republic of Germany," in Burton R. Clark, and Guy R. Neave (eds.), *Encyclopedia of Higher Education* (Oxford: Pergamon, 1992), Vol. 1, pp.240-260.
42. In the former West Germany, more than 95% professors were tenured civil servants. See B. Kelm and U. Teichler, op. cit.
43. A mathematics professor, as noted by Chen Shun-fen, was not granted a renewal of his contract after criticizing the CNP. See Chen's book, *Gāoděng Jiàoyù Yánjiū Lùnwénjí* (A Collection of Papers on Higher Education) (Taipei: Shī Dà Shū Yuàn, 1993), p.7.
44. Legislative Yuan, *Lǐfǎyuàn Yìàn Guānxi Wénshù: Dàxuéfǎ* (Documents of Legislative Yuan: The University Act), passed on 7 December 1993.
45. *Zhōngyāng Rìbào* (Central Daily News, international edition), 23 April, 1993, p.7.
46. In Hong Kong, no compulsory courses related to the Chinese and British heritage or a particular religion are imposed on students in their admission and graduation. The suspension of politics in schools is based on Article 94 of *Education Regulations*. This Article has two parts. The first part is as follows: "No instruction, education, entertainment, recreation or propaganda or activity of any kind which, in the opinion of the Director, is in any way of a political or partly political nature and prejudicial to the public interest or the welfare of the pupils or of education generally or contrary to the approved syllabus, shall be permitted upon any school premises or upon the occasion of any school activity." The second part is as follows: "No salutes, songs, dances, slogans, uniforms, flags, documents or symbols which, in the opinion of the Director, are in any way of a political or partly political nature



shall be used, displayed or worn, as the case may be, upon any school premises or upon the occasion of any school activity except with the permission of the Director and in accordance with such conditions as he may see fit to impose." See Article 94, in Department of Education, *Education Regulations, 1971* (Hong Kong: Government Printing Office, 1971).

47. Singapore, despite its multi-ethnicity and current search for "Singaporean identity," does not compel its higher education to transmit a selected set of central values to students. See Harold E. Wilson, *Social Engineering in Singapore: Educational Policies and Social Change, 1819-1972* (Singapore: Singapore University Press, 1978), pp.232-251.
48. For the introduction of moral education in the informal curriculum in secondary schools in Singapore, see Joy Chew, "Schooling for Singaporeans: the Interaction of Singapore Culture and Values in the School," a paper presented in the Symposium on International Perspective on Culture and Schooling held by the Department of International and Comparative Education, Institute of Education, University of London in May, 1993.
49. Iran offers an example to illustrate the precedence of the institutionalization of religion over other disciplines including science and technology in higher education during the period of 1978-1989. Between 1978 and 1989, the dominance of religious education was, as argued by David Menashri, to consolidate the political leadership of clerics and the propagation of Islamic values. The state emphasized cultural studies and social sciences within the framework of Islam more than science and technology. In 1980, a cultural revolution was launched by Ruhollah Khomeini against Western imperialism. After this year, "religion in command" became a characteristic of higher education in Iran. Higher education was dominated by clerics. A series of measures was taken to ensure the implementation of two tasks: the propagation of values advocated by religious leaders to students, and state control of higher education. Faculty members who had opposing political ideas were purged. "Ideological tests" became one of admissions criteria. Disciplinary committees were set up in each higher education institute to punish students whose behaviours deviated from political and moral norms. Textbooks, particularly those of humanities and social sciences, were re-written and there was a stress on the "oneness of religion and state." The areas and nature of research in Iran, as suggested by Menashri, were impeded by Islamic traditions. See David Menashri, *Education and the Making of Modern Iran* (Ithaca and London: Cornell University Press, 1992), pp.3, 230, 318-320.
50. Khosrow Sobhe, "Education in Revolution: Is Iran Duplicating the Chinese Cultural Revolution?" *Comparative Education*, Vol. 18, No. 3 (1982), pp.271-280.

51. Institutionalization of religion in higher education took place in Saudi Arabia (an important religious site for Muslims). Fouad Al-Farsy argues that modernization in Saudi Arabia was allowed to take place within the condition: the maintenance of national "culture, heritage, and distinctive identity." It was implied in the national plans of Saudi Arabia that its higher education institutions should foster technical cadres, and at the same time should function as agencies of the state to transmit the national religion, Islam, to students. The technological and cultural imperatives of national development of Saudi Arabia spelt out in its five national plans were to safeguard Islamic values, to defend the faith; and to raise the living standard and welfare of the people of Saudi Arabia. In the First Five-year Plan (1970-1975), the general objective of national construction of Saudi Arabia was: "to maintain its religious and moral values, and to raise the living standard and welfare." For each Five-year Plan, specific objectives concerning religious imperatives were also stated. For example, in the Fourth Five-year Plan (1985-1990), three religious tasks were: "to safeguard Islamic values, duly observing, disseminating and confirming Allah's Shari'ah"; "to defend the faith and the action, and to uphold the security and social stability of the Realm"; and "to raise cultural standards to keep pace with the Kingdom's [Saudi Arabia's] development." These three specific objectives recurred in the Fifth Five-year Plan (1990-1995). The objectives and strategies of these plans are in Fouad Al-Farsy, *Modernity and Tradition: The Saudi Equation* (London and New York: Kegan Paul International, 1990), pp.xxii, 148-165.
52. In Korean higher education, students are required to take compulsory courses like Korean language, cultural history, national ethics, and military training. In the projection of the future of Korean education in the 21st century, the Korean Ministry of Education suggested that the task of education is three-fold: to heighten the political, national and value consciousness of students; to produce high-level manpower for technological and industrial development; and to enable students to "filter .... alien entities with discreet eyes and establish a cultural identity of their own." For the list of required courses, see Jongchol Kim, *Educational Development: Some Essays and Thoughts on Korean Education* (Seoul: Seoul National University Press, 1985). For expectations about the future Korean education, see Ministry of Education, Republic of Korea, *Education in Korea, 1989-1990* (Seoul: Ministry of Education, 1990), p.106.
53. Malaysia advocates Islam as its major religion, and in Malaysian higher education attempts were made to integrate the Koranic worldview into the curriculum. The general purpose of the institutionalization of religion in Malaysia was to resist two potential threats. First, the preservation of Islamic values was challenged by the threat of "secularization" promoted in the "culture of capitalistic development" which was believed by the Malaysian government to foster human

greed, hedonism, and sexual desires. Islamic values include the absolute oneness of God; nature as a reflection of the sign of God's existence and character; the central role of people as God's Vicegerent (or successor) in the universe; the subservience of human pleasure, and material advancement to God's pleasure; and dignity as a reward for self-restraint of selfish desires. Second, the government judged that the reliance on science and technology to solve problems of the daily life would cause the withering of attitudes of God-consciousness. As a result, in the National University of Malaysia, students are required to take a two-unit course on Islam for one semester. The University of Technology designed an Islamic Education Programme for Muslim students. The aim of the Programme was to produce "capable technologists who possess the sense of accountability to God [of Islam] and society." See Muhammad Kamal Hassan, "The Implications of Science and Technology Education and Development on Islamic Values," in Rolf E. Vente, Ragbir S. Bhathal, and Rukhyabai M. Nakhlooda (eds.), *Cultural Heritage Versus Technological Development: Challenges to Education* (Singapore: Maruzen Asia, 1981), pp.191-201, 203-204.

54. Fouad Al-Farsy, *Modernity and Tradition: The Saudi Equation* (London and New York: Kegan Paul International, 1990), p.254.
55. The national percentage of students (including non-degree students) taking Islamic studies as their major in Saudi Arabia was 15.7% in 1985-1986. In the same academic year, the statistics of King Saud University (one of seven major universities) indicated that the higher the degree, the higher was the percentage of students enrolled in Islamic studies: 15.2% (14,655 out of 96,422) of undergraduates took Islamic studies as their major; 31.3% (1,017 out of 3,251) of master students; and 65.0% (454 out of 698) of doctoral students. See Fouad Al-Farsy, *op. cit.*, pp.258-259.
56. At the beginning of the switch of higher education towards the training of technical cadres in industrial societies, resistances against this tendency arose from academic circles in the 19th century and the early 20th century. A. H. Halsey interpreted the struggle between cultural education and vocational education as the resistance of traditional European universities (including the University of Berlin, Oxford University, and Cambridge University) to "vocationalism" or to the domination of the task of training professionals and officials over the development of literary knowledge including theology. Burton Clark specifically pointed out that in the US, higher education emphasized the importance of general education in higher learning, and liberal-arts professors were ones of the major opponents of the growing influence of applied specialists. See A. H. Halsey, "The Changing Functions of Universities," in A. H. Halsey, Jean Floud, and C. Arnold Anderson (eds.), *Education, Economy, and Society: A Reader in the Sociology of*

- Education* (New York: Free Press, 1961) p.458; and Burton R. Clark, *Educating the Expert Society* (San Francisco, California: Chandler, 1962), p.281. For the resistance of British higher education, see Robert Cowen, "Relations Between the University, Research and Industry," in *Anglo-Brazilian Seminar on Science, Technology and Education* (Brasília: University of Brasília, 1988), pp.155-169.
57. Between 1987 and 1990, the tertiary graduate ratios as a percentage of the corresponding age group in Hong Kong, Singapore, and Jordan were respectively 6.7, 5.8, and 5.6. The average ratio for industrialized countries in the same period was 9.4. See United Nations Development Programme, *Human Development Report, 1993* (New York and Oxford: Oxford University Press, 1993), pp.144-145.
  58. The governments of developing countries have made major efforts to expand the infrastructure of higher education and have enlarged its quota of student admissions. Students were sent to receive training in advanced countries. Moreover, expatriate scientists, engineers, teachers and other professionals were recruited from abroad to participate in the national construction of developing countries. The expatriates were also given the responsibility to train local people at home. In due course, the traditional curriculum with its emphasis on humanities was also replaced with a new pattern marked by specializations. See Philip G. Altbach, *Higher Education in the Third World: Themes and Variations* (London: Sangam Books Ltd., 1987), pp.19, 30-31.
  59. Roy Lowe, "Education for Industry: The Historical Role of Higher Education in England," in Peter W. G. Wright (ed.), *Industry and Higher Education: Collaboration to improve students' learning and training* (Buckingham: Society for Research into Higher Education and Open University Press, 1990), pp.9-17.
  60. "Report of Proceedings: Summary and Conclusion," in Yip Yat Hoong, *Role of Universities in National Development Planning in Southeast Asia: Proceedings of the Workshop held in Singapore, 26-29 July, 1971* (Singapore: Regional Institute of Higher Education and Development, 1971), p.6.
  61. Rolf E. Vente, "Preface," in Rolf E. Vente, Ragbir S. Bhathal, and Rukhyabai M. Nakhooda (eds.), *Cultural Heritage Versus Technological Development: Challenges to Education* (Singapore: Maruzen Asia, 1981), pp.1-4.
  62. David Menashri, *Education and the Making of Modern Iran* (Ithaca and London: Cornell University Press, 1992).
  63. Ministry of Education, Republic of Korea, *Education in Korea, 1989-1990* (Seoul: Ministry of Education, 1990), p.106.

64. Tham Seong Chee, "Education, Culture And Moral Values In Industrializing Plural Societies – With Special Reference to Singapore," in Rolf E. Vente, Ragbir S. Bhathal, and Rukhyabai M. Nakhooda (eds.), *Cultural Heritage Versus Technological Development: Challenges to Education* (Singapore: Maruzen Asia, 1981), pp.215-216.
65. Willy Wielemans and Pauline Chan suggest that industrialization and modernization are the core of Western identity. See Willy Wielemans, and Pauline Choi-Ping Chan (eds.), *Education and Culture in Industrializing Asia: the Interaction between Industrialization, Cultural Identity and Education, A Comparison of Secondary Education in Nine Asian Countries* (Leuven: Leuven University Press, 1992), pp.1-18.
66. Philip G. Altbach, "Higher Education in Advanced Developing Countries," in *Prospects*, Vol. 12, No. 3 (1982), p.299.
67. James S. Coleman, "Introduction to Part III," in the book edited by him, *Education and Political Development* (Princeton, New Jersey: Princeton University Press, 1965), pp.358-359.
68. James S. Coleman, "Education and Political Development," op. cit., p.15.
69. Lucian W. Pye (ed.), *Communications and Political Development* (Princeton, New Jersey: Princeton University Press, 1963), p.19; also cited by James S. Coleman, op. cit. p.14.
70. Kari Huus, "Minister of Almost Everything," in *Míng Bào* (Ming Pao Daily), 4 August 1993, p.49.
71. *Míng Bào* (Ming Pao Daily), 27 July, 1993, p.9.
72. These campaigns aim at the creation of a "clean" economic context for the development of socialist market economy in the PRC, and at saving the "confidence" of people in the CCP.
73. *Rénmín Rìbào Hǎiwàibǎn* (People's Daily, overseas edition), 4 November, 1993, p.1.
74. *Zhōngyāng Rìbào* (Central Daily News, international edition), 21 July, 1993, p.1.
75. "Revised Party Policy of the CNP," in *Zhōngyāng Rìbào* (Central Daily News, International edition), 22 August, 1993, p.1.
76. The per capita GNP of the ROC was steadily increased in the last four decades and attained US\$ 10,000 in 1992. This economic performance of the ROC, it had been suggested by Richard E. Barrett and Martin K. Whyte, was a deviant case of dependency theory. Barrett and Whyte argued that the steady economic growth of the ROC which received

massive foreign aid and investment defied two predications from dependency theory: underdevelopment in peripheral countries, and increasing inequality between core and peripheral countries. Barrett and Whyte also showed that none of the mechanisms which dependency theorists had identified led to foreign economic penetration in the ROC. See Richard E. Barrett and Martin K. Whyte, "Dependency Theory and Taiwan: A Case of a Deviant Case," *American Journal of Sociology*, Vol. 87, No. 5 (March 1982), pp.1064-1089.

77. In 1992, the PRC had advanced to be the 11th largest trading nation. In the same year, it had a 12% annual increase in the GNP; while Western countries, like the US and the United Kingdom, struggled against recession. See *Ming Pao* (Ming Pao Daily), 18 February, 1993, p.60.
78. This thesis agrees with Samuel P. Huntington's argument that cultural conflicts between states continue to exist in the post cold-war period. In particular, Huntington suggests that cultural conflicts will occur between states of Western, Confucian, and Islamic civilizations. See Samuel P. Huntington, "The Clash of Civilizations?" *Foreign Affairs*, Vol. 72, No. 3 (Summer 1993), pp.22-49.

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*Zhōngguó Jiàoyù Bào* (Chinese Education Newspaper)

*Zhōngguó Qīngnián Bào* (Chinese Youth Daily)

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### 2.2 The ROC

*Liánhé Bào* (United Daily)

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# APPENDIXES

## **APPENDIX 1.1**

### **FIELDWORK IN THE PRC AND ROC: SEMI-STRUCTURED INTERVIEWS**

#### **1. INTRODUCTION**

The appendix describes the use of semi-structured interviews in this research, explains the interviewer's choice of interviewees and their institutions, highlights the constraints encountered in such interviews, and delineates the objectives in setting those questions which were raised in interviews.

#### **2. SEMI-STRUCTURED INTERVIEWS**

This thesis adopted semi-structured interviews as means to exchange ideas based on some of its conclusions with selected respondents. By the time the financial support from the Central Fund Research (University of London) was available to make a trip to the PRC and ROC possible in September and October, 1993, this thesis has completed its first draft. The interviews in the PRC and ROC were conducted with a basic list of simple conclusions of the thesis and followed by pre-set questions. During interviews, supplementary questions were asked when necessary. In other words, these semi-structured interviews provided extensive opportunity for this thesis to ask "interpretive" questions, and for selected interviewees to express "interpretive" answers. The results of the interviews were used to refine the conclusions of the thesis, rather than for making generalizations.

#### **3. SELECTED RESPONDENTS AND THEIR INSTITUTIONS**

During the field trip to the PRC and ROC in late 1993, a total of 10 interviews were conducted. All interviewees were arranged through personal links, and therefore, the target respondents were more specified, though lesser, than those in other forms of interview such as questionnaires. In particular, the presidents, vice-presidents, or deans of academic affairs of selected higher education institutions in the PRC and ROC were interviewed. Government officials of the State Education Commission in the PRC and of the Ministry of Education in the ROC were also consulted. These university executives and government officials who were policy-makers and decision-makers faced, on a regular basis, challenges from the preservation of their respective cultural and political identity, and at the same time from a rapid global growth of knowledge, particularly science and technology.

In the PRC, 5 interviews were arranged. Four university executives from different universities were interviewed in Shanghai. An official of the

State Education Commission in Beijing also offered his personal opinions to this thesis. Among these five interviewees, only the president of Shanghai University allowed this thesis to identify his name if necessary. In order to keep the identity of the other four interviewees confidential, they would not be identified in this thesis by their names and posts.

The interviewer visited four universities in Shanghai: the East China Normal University, Fudan University, Shanghai University, and Shanghai University of Technology. In spite of the fact that the interviews with university executives were done in one city, Shanghai. It is one of the cities in which many state pilot tests in economic and educational reforms have been conducted or are being conducted.

These four universities in Shanghai have many changes in their curricular and institutional structures which this thesis concerns.

In particular, East China Normal University is one of the top teacher training centres in the PRC, and has exchange activities with the Department of International and Comparative Education (Institution of Education, University of London) in which this research was conducted. This university exceeds its traditional role of teacher-training institution; it offers courses in training personnel for the non-educational sector, such as finance and stock exchange.

Fudan University was formerly a comprehensive university emphasizing humanities and natural sciences before the 1980s, but now has established other colleges of technological sciences, and management sciences. Fudan University also established academic links with more than 60 universities in foreign countries including the US, United Kingdom, Germany and Japan. Moreover, after the 1989 student movement, this University was chosen by the state in 1990 as a second pilot university to test the one-year military training programme for new students. From 1993-1994, the period of military training was reduced to about two months.

In contrast to Fudan University, Shanghai University of Technology was formerly a single-discipline engineering university. Now this University has established colleges of humanities, social sciences, and international exchanges; and it offers inter-disciplinary courses including industrial management, industrial trade economics, and accounting information management. Moreover, this University fully implemented American credit and grading systems from 1993-1994. This University, together with Fudan University, was chosen in 1993 as a "civilized unit" in the construction of "spiritual civilization" by the municipal authorities.

Shanghai University was chosen by the municipal authorities to pilot the "assessment scheme for new universities and colleges" in the early 1990s. The interviewee was the President of this university, Professor Yang Dequang, who is also the Deputy Director of Shanghai Bureau of Higher Education. He

agreed to be identified if needed in this thesis.

In addition to interviewing university executives, this writer held a personal "talk" with an official of the State Education Commission of the PRC in his office in Beijing. The State Education Commission is the highest government educational institution responsible for the formulation and implementation of educational policies across the country. The interviewee is one of state policy makers. He specified that his opinions represented his own, not the State Education Commission.

As in the PRC, 5 interviews were arranged in the ROC. Three university academics and two government officials (who are at the same time part-time university professors) were interviewed. All of them permitted this thesis to identify them if necessary. However, one of them did not want to be identified if this writer would quote materials from the interview relating to the development of higher education in the ROC before the lifting of martial law in Taiwan in 1987.

Three universities were visited in Taipei, the ROC. They were National Taiwan Normal University, National Taiwan Normal University, and Fugen Catholic University. The last one is a private university. In Taiwan, private universities and colleges play a significant role in training professionals; for example, in 1990-1991, about 55% of students graduated from the private sector of higher education.<sup>1</sup> Both public and private universities and colleges have the same curriculum of ideological and political education stipulated by the Ministry of Education, and at the same time are given the tasks to train professionals for economic modernization.

In particular, National Taiwan Normal University as the first university (1928) in Taiwan was one of few universities which experienced most of the political changes in Taiwan in the last six decades: the retrocession of Taiwan from the Japanese colonial administration to Republican China in 1945, the domination of the Chinese Nationalist Party, and the institutionalization of opposition in the political structure in 1987. Now National Taiwan University is the largest public university and receives usually the largest financial support from the government. This University has many famous institutes of science and technology in the ROC. Moreover, this University was the first higher education institution which broke the traditional practice – the appointment of its president by the government. The current president was selected by university academics in 1993. The Dean of Academic Affairs, Professor Te-Son Kuo who is also from a professor of the Department of Electrical Engineering and Research Center for Medical Engineering, was interviewed by this writer.

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<sup>1</sup> *Zhōnghuá mínguó Jiàoyù Tǒngjì* (Statistics of the Republic of China, 1992) (Taipei: Ministry of Education, 1993), p.115.

National Taiwan Normal University selected its president after the manner of National Taiwan University few months later. National Taiwan Normal University is one of the most significant higher education institutions for training teachers in Taiwan, and has established the Center of Educational Research for more than two years. Although the President and Dean of Academic Affairs were not arranged for interview, Dr. Chen Shun-Fen, one of the academics in this University, was interviewed instead. Dr. Chen published a book about higher education in Taiwan in early 1993.

In contrast to the previous two public universities, Fujen Catholic University is a private institution in the ROC. Although no religion as a subject is allowed to be propagated in classroom, Fujen University was the first higher education institution allowed by the authorities to establish bachelor and master courses for comparative religion in the early 1990s. The Dean of Academic Affairs, Professor Bernard C. C. Li, was interviewed by this writer. Li is also a professor of the Department of Philosophy.

In the ROC, this writer also interviewed two government officials of the Ministry of Education which is the highest educational organization in the ROC. These two interviewees are responsible for the educational policy and its implementation at different educational levels in Taiwan: Professor Kuo-Shih Yang, the Director of the Department of Higher Education; and Professor Ching-Ji Wu, Director of the Department of Secondary Education.

Except for one, all interviewees in the PRC and ROC were given a Chinese version of a structured question list (see Appendix 1.2) several days before the interview took place. The exceptional case was the "personal" talk with a state cadre of the State Education Commission in Beijing. The talk was successfully arranged only half an hour before it took place.

#### **4. CONSTRAINTS ENCOUNTERED IN INTERVIEWS**

The interviewer faced 3 major constraints in conducting semi-structured interviews in the PRC and ROC. They were language barriers, limited reliability of such interviews, and personal biases of both interviewer and interviewees.

One of the major difficulties the interviewer faced in this field trip was communication. It was because all interviewees speak Mandarin which is the "third language" of this writer. The writer can speak Cantonese and English, but cannot speak fluent Mandarin. Despite this limitation, the writer can understand spoken Mandarin with little difficulty, and the interviewees were kind enough to speak slowly. Moreover, Chinese, though having many dialects, has one form of written characters. During interview, all interviewees had a list of 9 pre-set questions before them, and were asked to respond to these questions in sequence. Such a written list helped reduce language

barriers between the writer and interviewees. Supplementary questions were also added when necessary.

Despite this communication problem, nine of the ten interviews were allowed to be taped so that this writer could listen to the tapes and check the contents of the interviews later. The "talk" with the Beijing official (who was mentioned earlier) was not allowed to be recorded. Fortunately, he spoke Cantonese and the "talk" was conducted in Cantonese. Major points of the "talk" were written down by the interviewer without language barriers.

Moreover, this thesis acknowledges the limited reliability of semi-structured interviews. The small number of respondents would limit the generality of the results generated from these interviews. Only five academic executives were interviewed in each country owing to time, spatial and financial constraints. The number of interviewees is not crucial to this thesis because the results of these interviews would be treated as specific, rather than general, cases. Moreover, the interviews, as mentioned earlier in this appendix, were conducted after the first draft of this thesis was made. The results of these interviews were used only to refine the conclusion of the documentary research of the thesis.

Finally, personal biases of both interviewer and interviewees would also affect the validity of this survey as in other types of interviews such as questionnaires. The preconceptions of the interviewer in setting questions and coding responses were minimized by asking questions which, this thesis believes, provided opportunity for the 10 interviewees to express their answers in their own framework.

Moreover, in order to enhance the validity of the results of interviews, each interviewee was sent a transcription of the interview through registered air mail services in late November 1993. Each interviewee was also asked to give the interviewer, if any, his or her comments on the transcription by the end of December, 1993. Up to the writing up of this thesis, the interviewer received comments from Professors Te-Son Kuo and Kuo-Shih Yang, and Dr. Chen Shun-Fen.

Interviewees would also affect the validity and reliability of this survey. The sources of error may come from interviewees' preconceptions, understanding of the questions raised, and socio-political constraints probably imposed on them. All interviewees were asked the same set of basic questions during interview. Moreover, before the interview, each respondent was given a covering letter stating the aims of this research and a set of questions (in Chinese) which would be asked later. At the beginning of all interviews, all respondents were briefed again about the aims of this survey, and were asked whether they would permit the interviewer to record the conversation. Also asked in all interviews was whether the respondents would allow the interviewer to identify them and their institutions in the thesis.

## **5. AIM AND OBJECTIVES OF SELECTED QUESTIONS**

In each interview, 9 major pre-set questions were asked (see Appendix 1.2). Behind them was one broad aim: to see how in recent domestic reforms the higher education systems of the PRC and ROC responded to challenges by the rapid growth of knowledge, particularly science and technology, and at the same time preserved their cultural and political identity.

In particular, 9 common questions were set to help differentiate the higher education systems (and societies) of the PRC and ROC. These questions can be broadly classified into 4 groups: Questions 1 - 4 relating to the utilitarian borrowing of knowledge in both higher education systems; Questions 5 - 7 relating to the institutional defence for the preservation of cultural and political identity; Question 8 about recent mutual interactions between both higher education systems; and Question 9 relating to the interviewees' speculations about the future development of their higher education systems.

Questions 1 and 2 were asked to find out the current strategies used by both higher education systems to meet challenges from the global growth of knowledge, and the difficulties encountered by both higher education systems. Curriculum and the establishment of institutes, as mentioned in Chapter Six, were chosen as indicators of utilitarian borrowing.

Question 3 asked about which factors would the higher education systems of the PRC and ROC consider in borrowing knowledge and experience from other countries.

Question 4 tested whether the higher education systems of the PRC and ROC would stop utilitarian borrowing of knowledge from other countries if both Chinese countries could train their research students at home.

Question 5 tested the limits of the devolution of power to higher education institutions in the PRC and ROC by their governments. Curriculum choice and university administration were used to see which areas the central governments would give power to higher education institutions.

Question 6 followed up the previous one, and further tested whether the higher education systems of the PRC and ROC had powers over political and ideological education in recent reforms.

Question 7 asked about the role of private higher education in the PRC and ROC. In particular, the idea that private higher education institutes like public ones were agencies of the state for political socialization was tested.

Question 8 was to find out the evaluation of the interviewees in the PRC and ROC on their mutual academic exchange activities. Obstacles to such activities were expected to be identified.

Question 9 was to identify what factors would affect the higher education systems of the PRC and ROC in the next 10 years. In particular, this question was used to speculate about any possible change in factors affecting the tension between the production of technical cadres for economic modernization and cultural transmission for the preservation of cultural and political identity in both higher education systems.

Both English and Chinese versions of these 9 questions are in Appendix 1.2. The transcription of the 10 interviews was not included in the thesis for two reasons. The writer of this thesis has obligation to protect those interviewees who did not want to be identified in this research. Moreover, the results of the interviews did not affect the main argument and findings of this thesis (which was originally based on documentary evidence). The writer accepted the formal advice of his supervisor, and did not incorporate the transcription of the interviews into this thesis.



## APPENDIX 1.2

### Questions for Interviews in mainland China and Taiwan (English Version)

#### MAINLAND CHINA

1. Higher education systems in many countries are facing a rapid global growth of knowledge particularly in science and technology, and attempt to make some adjustments, such as the modification of curricula and establishment of new universities, colleges and departments, to cope with this challenge.
  - A. In your opinion, what strategies is the higher education system in your country using in adjusting the curriculum to cope with the global rapid growth of knowledge?
  - B. In your opinion, what strategies is the higher education system in your country using in the establishment of new universities, colleges and departments to cope with the rapid global growth of knowledge?
  
2. In making such adjustments in curricular and institutional structures, higher education systems in many countries also faced difficulties in linking the new and former policies and practices.
  - A. In your view, how do the new policies in curriculum fit with the old patterns of curriculum?
  - B. In your view, how do the new policies in the establishment of new universities, colleges and departments fit with the old patterns of institutional arrangements?
  
3. To exchange ideas about higher education and its reform between countries is a common practice in the international academic network.  
  
 When your government looks overseas, which countries, do you think, would interest your government most in higher education reform?
  
4. Your country has sent many students to receive postgraduate training abroad for a long time.  
  
 Do you think that it is the time for your country to train postgraduate students at home?

5. There have been reforms in your country from the 1980s, and power has been devolved to the higher education system of your country.
  - A. In your opinion, what kind of choices in curriculum has been made in the higher education system of your country to reflect the devolution of power?
  - B. In your opinion, what kind of choices in university administration has been made in the higher education system of your country to reflect the devolution of power?
6. The world is changing rapidly. Education in Values has become increasingly important in many countries.
  - A. In the higher education system of your country, have the courses covering moral education and civic education been changed recently?
  - B. In your opinion, what are the new emphases, if any, in these courses?
7. In many countries, private higher education institutions have become increasingly important. Their courses are usually determined by market and labour needs.
  - A. What do you think about the impact of private higher education institutions to the higher education system in your country?
  - B. In your opinion, how should private higher education institutions in your country balance their curriculum between technical studies and moral education?
8. There are many cross-strait activities taking place between your country and Taiwan. Both governments emphasize and are cautious about the development of these cross-strait activities.
  - A. Has your university participated in cross-strait academic activities?
  - B. In your opinion, what obstacles, if any, would hinder the development of cross-strait academic activities?
9. Apart from (international and domestic) economic factors, what other major factors (international and domestic), do you think, will affect the development of higher education in your country in the next ten years?

## TAIWAN

1. Higher education systems in many countries are facing a rapid global growth of knowledge particularly in science and technology, and attempt to make some adjustments, such as the modification of curricula and establishment of new universities, colleges and departments, to cope with this challenge.
  - A. In your opinion, what strategies is the higher education system in your country using in adjusting the curriculum to cope with the global rapid growth of knowledge?
  - B. In your opinion, what strategies is the higher education system in your country using in the establishment of new universities, colleges and departments to cope with the rapid global growth of knowledge?
  
2. In making such adjustments in curricular and institutional structures, higher education systems in many countries also faced difficulties in linking the new and former policies and practices.
  - A. In your view, how do the new policies in curriculum fit with the old patterns of curriculum?
  - B. In your view, how do the new policies in the establishment of new universities, colleges and departments fit with the old patterns of institutional arrangements?
  
3. To exchange ideas about higher education and its reform between countries is a common practice in the international academic network.  
  
 When your government looks overseas, which countries, do you think, would interest your government most in higher education reform?
  
4. Your country has sent many students to receive postgraduate training abroad for a long time.  
  
 Do you think that it is the time for your country to train postgraduate students at home?

5. There have been reforms in your country from the 1980s, and power has been devolved to the higher education system of your country.
  - A. In your opinion, what kind of choices in curriculum has been made in the higher education system of your country to reflect the devolution of power?
  - B. In your opinion, what kind of choices in university administration has been made in the higher education system of your country to reflect the devolution of power?
6. The world is changing rapidly. Education in Values become increasingly important in many countries.
  - A. In the higher education system of your country, have the courses covering moral education and civic education been changed recently?
  - B. In your opinion, what are the new emphases, if any, in these courses?
7. In many countries, private higher education institutions have become increasingly important. Their courses are usually determined by market and labour needs.
  - A. What do you think about the impact of private higher education institutions to the higher education system in your country?
  - B. In your opinion, how should private higher education institutions in your country balance their curriculum between technical studies and moral education?
8. There are many cross-strait activities taking place between your country and mainland China. Both governments emphasize and are cautious about the development of these cross-strait activities.
  - A. Has your university participated in cross-strait academic activities?
  - B. In your opinion, what obstacles, if any, would hinder the development of cross-strait academic activities?
9. Apart from (international and domestic) economic factors, what other major factors (international and domestic), do you think, will affect the development of higher education in your country in the next ten years?

## 訪問中國大陸高等院校之問卷

(中文版)

1. 很多國家的高等教育，在全球知識（尤以科技）迅速增長所帶來的挑戰下，作了多方面的調整，如修改課程和建立新的院校與學系，以適應時代的需要。
  - A. 你認為貴國高等教育在**課程**方面，現用甚麼策略來應付全球知識迅速增長所帶來的挑戰？
  - B. 你認為貴國高等教育在**院校和學部成立**方面，現用甚麼策略來應付全球知識迅速增長所帶來的挑戰？
2. 很多國家的高等教育，在調整這些課程和成立院校與學部時，因新舊政策的**不同**，在施行時也會有所不同，而導致在新舊銜接方面遇上困難。
  - A. 你認為貴國高等教育在調整時，新的**課程**政策是如何與舊的課程模式配合？
  - B. 你認為貴國高等教育在調整時，新的**院校和學部成立**政策是如何與舊的院校學部模式配合？
3. 國際學術交流其中一個重要環節是：國家與國家交流有關高等教育及其改革之意見。  
 你認為貴國政府，若要向海外國家借取高等教育改革經驗作為參考時，那些**海外國家**會最吸引貴國政府？
4. 貴國政府在過去日子中，已派出了不少留學生往外國接受研究生訓練。  
 你認為現階段，是否是貴國在國內訓練本土研究生的適合時期？
5. 由八十年代開始，貴國已有不少改革，而貴國政府已給予高等院校某些**自主權**。
  - A. 你認為在那些**課程**選擇上，可反映高等院校的自主權？
  - B. 你認為在那些**院校行政**選擇上，可反映高等院校的自主權？

6. 世界正在迅速改變。很多國家越來越重視透過教育來培植學生的價值觀念。
  - A. 你認為在近期中，貴國高等教育在德育和公民教育課程是否已作出改變？
  - B. 若在德育和公民課程上有新的重點，你認為這些重點是甚麼？
7. 在很多國家中，私立高等院校已越來越顯得重要，而它們的課程內容經常是由市場和勞動力的需要所決定。
  - A. 你認為貴國私立院校，對貴國整個高等教育有甚麼影響？
  - B. 你認為貴國私立院校，在課程上應如何平衡專業訓練與德育教育？
8. 現時貴國與台灣有很多兩岸交流活動。兩岸政府對這些交流非常重視和審慎。
  - A. 貴校有沒有參加兩岸學術交流活動？
  - B. 你認為在促進兩岸學術交流活動中，會遇上障礙嗎？若會，可否指出這些障礙是甚麼？
9. 在未來十年中，除了（國際和國內）經濟因素外，你認為還會有甚麼其他主要因素（包括國際和國內）影響貴國高等教育發展？

## 訪問台灣高等院校之問卷

(中文版)

1. 很多國家的高等教育，在全球知識（尤以科技）迅速增長所帶來的挑戰下，作了多方面的調整，如修改課程和建立新的院校與學系，以適應時代的需要。
  - A. 你認為貴國高等教育在**課程**方面，現用甚麼策略來應付全球知識迅速增長所帶來的挑戰？
  - B. 你認為貴國高等教育在**院校和學部成立**方面，現用甚麼策略來應付全球知識迅速增長所帶來的挑戰？
2. 很多國家的高等教育，在調整這些課程和成立院校與學部時，因新舊政策的**不同**，在施行時也會有所不同，而導致在新舊銜接方面遇上困難。
  - A. 你認為貴國高等教育在調整時，新的**課程**政策是如何與舊的課程模式配合？
  - B. 你認為貴國高等教育在調整時，新的**院校和學部成立**政策是如何與舊的院校學部模式配合？
3. 國際學術交流其中一個重要環節是：國家與國家交流有關高等教育及其改革之意見。  
 你認為貴國政府，若要向海外國家借取高等教育改革經驗作為參考時，那些**海外國家**會最吸引貴國政府？
4. 貴國政府在過去日子中，已派出了不少留學生往外國接受研究生訓練。  
 你認為現階段，是否是貴國在國內訓練本土研究生的適合時期？
5. 由八十年代開始，貴國已有不少改革，而貴國政府已給予高等院校某些**自主權**。
  - A. 你認為在那些**課程**選擇上，可反映高等院校的自主權？
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6. 世界正在迅速改變。很多國家越來越重視透過教育來培植學生的價值觀念。
  - A. 你認為在近期中，貴國高等教育在德育和公民教育課程是否已作出改變？
  - B. 若在德育和公民課程上有新的重點，你認為這些重點是甚麼？
7. 在很多國家中，私立高等院校已越來越顯得重要，而它們的課程內容經常是由市場和勞動力的需要所決定。
  - A. 你認為貴國私立院校，對貴國整個高等教育有甚麼影響？
  - B. 你認為貴國私立院校，在課程上應如何平衡專業訓練與德育教育？
8. 現時貴國與中國大陸有很多兩岸交流活動。兩岸政府對這些交流非常重視和審慎。
  - A. 貴校有沒有參加兩岸學術交流活動？
  - B. 你認為在促進兩岸學術交流活動中，會遇上障礙嗎？若會，可否指出這些障礙是甚麼？
9. 在未來十年中，除了（國際和國內）經濟因素外，你認為還會有甚麼其他主要因素（包括國際和國內）影響貴國高等教育發展？



## APPENDIX 4.1

A comparison of four major directives concerning the leadership of higher education in the PRC between 1950 and 1953.

CLASSIFICATION			1950 MAY	1950 JULY	1950 AUG	1953 MAY
GENERAL	SPECIFIC					
GENERAL	By Region	North China	ME			
		Other part	REAC			
	By Type	Universities		ME		MEH
		Multi-F Colleges		ME		MED
		Mono-F Colleges		ME/ RAC		CSp
POLICY AND SYSTEM	Policy and System		ME	ME		MHE
	Approved adjustment allowed		ME	ME		ME/ SAC
ESTABLISH- MENT  OR  ABOLITION	Universities		ME	ME	ME	MHE
	Special Colleges		ME	ME	ME	MHE
	Colleges by Universities		ME	ME	ME	MHE
	Departments and Research Institutes				ME	MHE
	Training courses				ME	
PERSONNEL:  Appointment of Principals	Universities		CCCP	ME	ME	MHE
	Special Colleges		SAC	ME	ME	MHE
	Technical Colleges		SAC	ME	ME	MHE
	Private		REAC			
PERSONNEL: Appointment of other posts	General Executive				ME	MHE
	Directors of Research Institutes				P	MHE
	College heads of Universities				P	MHE
	Teaching Staff				P	MHE
	Librarians				P	MHE
	Clerical & minor staff, guards				P	MHE
FINANCE	Budget/Expenditure		REAC	ME		MHE
	Teacher and Student treatment				ME	
TEACHING	Plans, Curricula and Outlines				ME	MHE

(See keys and source on the next page.)

**Key:** CCCP = Central Chinese Communist Party  
 SAC = State Administrative Council  
 ME = Ministry of Education  
 (Before November 1952)  
 MHE = Ministry of Higher Education  
 (after November 1952)  
 REAC = Regional (provincial and/or municipal)  
 Education Administrative Council  
 P = Principals of higher education institutes  
 F = Academic faculty (subject)  
 / = Either organization had the final say.  
 Blank = Not mentioned in the directive

**Sources:** *Zhōnghuá Jiàoyù Niánjiàn, 1949 - 1981* (China Education Yearbook, 1949 - 1981) (Beijing: China Encyclopedia, 1984), pp.775-777, 781;  
 and Zhèngguó Yuán (ed.), *Zhōngguó Dāngdài Jiàoyù Shīcháo, 1949 - 1989* (China's Contemporary Education, 1949 - 1989) (Shanghai: Joint Publishing Co., 1991), pp.2-4.

## APPENDIX 5.1

Number of students by college, and nationality in Taiwan in 1944.

College and Course of Study		Total	Nationality		
			Taiwanese	Japanese	Others
College of Medicine		360	122	237	1
College of Agriculture		268	14	249	5
College of Economics		437	123	313	1
College of Technology		752	109	643	
National Imperial University	Science	42	1	40	1
	Agriculture	75		74	1
	Medicine	157	80	77	
	Engineering	49	2	47	
	Humanities	34	2	30	2
Science and technology (Sub-total)		1,703 (100%)	328 (19.3%)	1,367 (80.3%)	8 (0.4%)
Total		2,174 (100%)	453 (20.8%)	1,710 (78.7%)	11 (0.5%)

**Source:** Zhǐtíng Wāng, *Táiwān Jiàoyù Shǐliào Xīnbǎn* (The History of Education in Taiwan: a New Collection) (Taipei: Commercial Press, 1978), pp.129-130, 134-145, 143, and 152-153.

## APPENDIX 5.2

Comparison of priority areas of science and technology in selected national plans of economic development, and science and technology of the PRC between 1952 and 1990.

PRIORITY	1st Five-Year Plan (1952-1957)	12-Year Plan for S&T Development (1956-1967)	8-Year Plan for S&T Development (1978-1985)	6th Five-Year Plan (1981-1985)	High-Technology R&D Programme (1986)	7th Five-Year Plan (1986-1990)	8th Five-Year Plan (1991-1995)
1	Peaceful use of atomic energy	Peaceful use of atomic energy	Agriculture	Agriculture	Biotechnology	Agriculture	Agriculture
2	Iron and steel technology	Radio Electronics	Energy: Its exploration and utilization	Light industry	Space technology	Consumer goods industry	Irrigation
3	Petroleum	Jet Propulsion	Materials	energy: development and saving	Information technology	Energy	Energy
4	Seismology	Automation: remote control	Electronics	Communications & transport	Laser technology	Raw and semi- finished materials	Transport & post & Telecommunications
5	Exploitation of rivers and valleys	Petroleum and mineral exploration	Laser	Machine manufacturing	Automation technology	Geographical prospecting	Raw materials
6	Tropical plants	Metallurgy: processes and alloys	Space: remote sensing techniques, application of satellites	Material industry	Energy technology	Machine building & electronics industries	Geographical prospecting: natural resources exploration
7	Geography	Fuel technology	High energy physics	New techniques	New Materials	Transport & post & communications	Electronic industry
8	Antibiotics	Power equipment; heavy machinery	Genetic engineering				Machine building industry
9	Polymers	Yellow and Yangtze rivers control					National defense & defence technology
10	Economic and history	Chemical fertilizers					Light industry
11		Eradication of diseases					Construction
12		Natural sciences and theory					

**Sources:**

For the First Five-Year Plan (1952-1957), *First Five-Year Plan for Development of the National Economy of the People's Republic of China in 1953-1957* (Beijing: Foreign Languages, 1956); the Twelve-Year Plan (1956-1967), Jon Sigurdson, *Technology and Science in the People's Republic of China* (Oxford: Pergamon, 1980), p.26; and the Eight-Year Plan (1978-1985), Fang Yi, "Outline National Plan for the Development of Science and Technology, Relevant Policies and Measures," *Beijing Review*, 7 April, 1978, No.14, pp.6-14, 17. For the Sixth Five-Year Plan, see State Science and Technology Commission, "Guānyú Wǒguó Kēxué Jìshù Fāzhǎn Fāngzhēn De Huibào Tígāng" (Outline Report on Policy Concerning the Development of Our National Science and Technology by the State Science and Technology Commission) in Research Centre of the Central Committee of the Communist Party of China (ed.), *Zhōnggòng Shǔyìjì Sānzōng Quánhùi Yǐlái Shǒuyào Jiǎnghuà Jí Wénjiàn Xuǎnbǐan* (Selected Work of Important Speeches and Meeting Document Since the 3rd Plenary Session of the 11th Congress of the Central Committee of the Communist Party of China), pp.762-776. The English translation of the Report is in *Issues & Studies*, Vol.18, No.5 (May 1982), pp.84-101. The "High-Technology Research and Development Programme" of 1986 is in Xinhua Wang, *Science and Technology Policy Study in China* (Shanghai: Shanghai Popular Science Press, 1990), p.189. For the Seventh Five-Year Plan (1986-1990), see *Zhōnghuá Rénmín Gònghéguó Guómín Jīngjì Hé Shèhuì Fāzhǎn Dìqīgè Wǔnián Jìhuà (1986 - 1990)* (The Seventh Five-Year Plan for Economic and Social Development of the People's Republic of China) (Beijing: People's, 1986), pp.35-86; for the English translation, see *The Fourth Session of the Sixth National People's Congress (April 1986)* (Beijing: Foreign Languages, 1986), pp.78-99. For the Eighth Five-Year Plan (1991-1995), see *Zhōngguó Zhōngyāng Guānyú Zhìdìng Guómín Jīngjì Hé Shèhuì Fāzhǎn Shínián Guǒhuà Hé Bǎwǔ Jìhuà De Jiànyì* (The Ten-year Planning of the National Economy and Social Development and the Proposal On the Eighth Five-year Planning By Chinese Communist Party) (Beijing: People's Publishing House, 1991), pp.75-155.

## APPENDIX 6.1

Number of Higher Education Institutes for Training Science and Technology Personnel by Field of Study in the PRC in Selected Periods.

Field of Study	1950		1953		1958		1965		1971		1978		1985		1990	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Fields	193	100.0	181	100.0	791	100.0	434	100.0	328	100.0	598	100.0	1,016	100.0	1075	100.0
Comprehensive Universities	50	25.9	14	7.7	27	3.4	29	6.7	27	8.2	32	5.4	43	4.2	50	4.7
Engineering	27	14.0	38	21.0	251	31.7	127	29.3	115	35.1	184	30.8	262	25.8	286	26.6
Agriculture	17	8.8	26	14.4	96	12.1	45	10.4	31	9.5	48	8.0	61	6.0	59	5.5
Forestry	3	1.6	3	1.7	13	1.6	8	1.8	3	0.9	8	1.3	11	1.1	11	1.0
Medicine & Pharmacy	29	15.0	29	16.0	134	16.9	92	21.2	78	23.8	100	16.7	116	11.4	122	11.3
S&T Sub-total	120	62.2	110	60.8	521	65.9	301	69.4	254	77.4	372	62.2	493	48.5	528	49.1

Notes: 1. % = Percentage of institutes (out of all fields of study).

2. S&T = Science and technology

3. Institutes of science and technology include comprehensive universities, engineering, agriculture, forestry, medicine and pharmacy.

### Sources:

Department of Planning of the Ministry of Education, *Achievement of Education in China: Statistics, 1949 - 1983* (Beijing: People's Education Press, 1984), p.51; and *Achievement of Education in China: Statistics, 1986 - 1990* (Beijing: People's Education Press, 1991), p.20.

## APPENDIX 6.2

Number of comprehensive universities, and institutes of finance & economics, language & literature, and politics & law in the PRC between 1949 and 1957.

YEAR	NUMBER OF INSTITUTES BY FIELD OF STUDY			
	Comprehensive University	Finance & Economics	Language & Literature	Political Sciences & Law
1949	49	11	11	7
1950	50	12	6	3
1951	47	19	8	1
1952	22	12	8	3
1953	14	6	8	4
1954	14	5	8	4
1955	14	5	8	5
1956	15	5	8	5
1957	17	5	8	5

**Source:** Ministry of Education, Department of Planning, *Achievement of Education in China: Statistics, 1949-1983* (Beijing: People's Education Press, 1984), p.51.

## APPENDIX 6.3

Undergraduate Enrolment (Normal Courses) in Education of Science and Technology by Field of Study in the PRC in Selected Years.

Field of Study	1949		1953		1958		1965		1971		1978		1985		1990	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Fields	93,917	100.0	151,533	100.0	518,767	100.0	644,008	100.0	83,400	100.0	458,548	100.0	1,122,643	100.0	1,320,124	100.0
Natural Sciences	6,877	7.3	11,726	7.7	40,101	7.7	61,905	9.6	6,420	7.7	43,817	9.6	88,525	7.9	85,714	6.5
Engineering	23,118	24.6	54,227	35.8	217,995	42.0	292,680	45.4	23,700	35.1	196,252	42.8	454,322	40.5	546,096	41.4
Agriculture	7,607	8.1	11,232	7.4	44,794	8.6	50,648	7.9	4,850	9.5	22,721	5.0	63,040	5.6	63,272	4.8
Forestry	421	0.4	2,292	1.5	8,129	1.6	9,793	1.5	670	0.9	4,562	1.0	13,975	1.2	14,219	1.1
Medicine & Pharmacy	12,525	13.3	23,635	15.6	64,864	12.5	72,909	11.3	18,060	23.8	64,808	14.1	132,328	11.8	152,680	11.6
S&T Sub-total	50,548	53.8	103,112	68.0	375,883	72.5	487,935	75.8	53,700	77.4	332,160	72.4	752,190	67.0	861,981	65.3

Note: 1. Normal undergraduate courses were those which mostly lasted 4 years.

2. % = Percentage of students (out of all fields of study).

3. S&T = Science and technology

4. Students of science and technology included those who were enrolled in the field of natural sciences, engineering, agriculture, forestry, and medicine and pharmacy.

5. No normal undergraduate courses were available in 1971; instead of them, regular courses which lasted 2-3 years were offered. Therefore, the figures in 1971 referred to those who enrolled in regular courses.

Sources:

Department of Planning of the Ministry of Education, *Achievement of Education in China: Statistics, 1949 - 1983* (Beijing: People's Education Press, 1984), pp.56-61; and *Achievement of Education in China: Statistics, 1986 - 1990* (Beijing: People's Education Press, 1991), pp.25-26.



## APPENDIX 6.4

Number of Graduates (from Normal Courses) of Science and Technology by Field of Study in the PRC in Selected Years.

Field of Study	1953		1958		1965		1971		1978		1985		1990	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Fields	26,584	100.0	46,504	100.0	178,001	100.0	5,945	100.0	156,791	100.0	201,885	100.0	307,865	100.0
Natural Sciences	1,753	6.6	4,466	9.6	20,594	11.6	97	1.6	12,079	7.7	17,721	8.8	231,25	7.5
Engineering	10,194	38.3	17,182	36.9	79,352	44.6	1,173	19.7	53,630	34.2	80,619	39.9	125,761	40.8
Agriculture	1,842	6.9	2,851	6.1	14,563	8.2	60	1.0	13,150	8.4	12,777	6.3	16,723	5.4
Forestry	208	0.8	896	1.9	3,237	1.8	0	0.0	2,523	1.6	2,748	1.4	3,626	1.2
Medicine & Pharmacy	2,016	7.6	4,993	10.7	19,804	11.1	4,615	77.6	25,851	16.5	23,718	11.7	30,177	9.8
S&T Sub-total	16,013	60.2	30,388	65.3	137,550	77.3	5,945	100.0	107,233	68.4	137,583	68.1	199,412	64.8

Note: 1. % Percentage of graduates (out of all fields of study).

2. S&T = Science and Technology

3. Graduates of science and technology included those from natural sciences, engineering, agriculture, forestry, medicine and pharmacy.

4. No students were graduated from normal courses (which normally lasted for 4 years) in 1978. The figures referred to those graduated from regular courses which lasted for 2-3 years.

Sources:

Department of Planning of the Ministry of Education, *Achievement of Education in China: Statistics, 1949 - 1983* (Beijing: People's Education Press, 1984), pp.82-87; and *Achievement of Education in China: Statistics, 1986 - 1990* (Beijing: People's Education Press, 1991), pp.27-28.

## APPENDIX 6.5

Undergraduate Enrolment in Education of Science and Technology by Field of Study in the ROC in Selected Years.

Field of Study	1955-1956		1960-1961		1965-1966		1968-1969		1975-1976		1984-1985		1990-1991	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Fields	18,174	100.0	35,060	100.0	85,346	100.0	80,255	100.0	135,297	100.0	173,908	100.0	239,082	100.0
Natural Science	1,129	6.2	3,243	9.2	5,511	6.5	7,830	9.8	12,799	9.5	9,917	5.7	12,085	5.1
Mathematics & Computer Science											10,046	5.8	16,201	6.8
Medical Diagnostic Treatment	712	3.9	2,725	7.8	7,149	8.4	6,865	8.6	8,378	6.2	14,661	8.4	18,595	7.8
Craft & Industry													603	0.3
Engineering	4,901	27.0	6,958	19.8	12,920	15.1	13,592	16.9	27,312	20.2	32,680	18.8	39,014	16.3
Architecture & Town Planning											2,844	1.6	3,656	1.5
Agriculture, Forest & Fishery	2,038	11.2	3,049	8.7	5,447	6.4	4,368	5.4	4,368	3.2	4,609	2.7	6,191	2.6
Home Economics											776	0.4	2,710	1.1
Transportation & Communication											2,605	1.5	2,967	1.2
S&T Sub-total	8,780	48.3	15,975	45.5	31,027	36.4	32,655	40.7	52,857	39.1	78,138	44.9	102,022	42.7

**Notes:**

1. Numbers of students before 1966 included students of junior colleges and postgraduate.
2. All figures included students of day and evening sessions.
3. S&T = Science and technology.

**Sources:**

*Zhōnghuá mínguó Jiàoyù Tǒngjì* (Educational Statistics of the Republic of China) (Taipei: Ministry of Education), various years.

## APPENDIX 6.6

Number of Graduates Awarded First Degrees in Science and Technology by Field of Study in the ROC in Selected Years.

Field of Study	1960-1961		1965-1966		1967-1968		1974-1975		1979-1980		1984-1985		1989-1990	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All Fields	6,706	100.0	12,628	100.0	12,978	100.0	24,564	100.0	30,508	100.0	36,998	100.0	42,952	100.0
Natural Science	520	7.8	1,157	9.2	1,274	9.8	2,813	11.5	2,741	9.0	2,091	5.7	2,481	5.8
Mathematics & Computer Science											1,927	5.2	2,818	6.6
Medical Diagnostic Treatment	341	5.1	852	6.7	877	6.8	1,204	4.9	1,443	4.7	2,359	6.4	3,071	7.1
Craft & Industry											90	0.2	108	0.3
Engineering	1,454	21.7	2,338	18.5	1,991	15.3	3,972	16.2	6,245	20.5	7,480	20.2	8,442	19.7
Architecture & Town Planning											622	1.7	618	1.4
Agriculture, Forest & Fishery	624	9.3	987	7.8	928	7.2	1,028	4.2	1,013	3.3	980	2.6	1,331	3.1
Home Economics													569	1.3
Transportation & Communication											615	1.7	576	1.3
S&T Sub-total	2,939	43.9	5,334	42.2	5,070	39.1	9,017	36.8	11,442	37.5	16,164	43.7	20,014	46.6

**Notes:**

1. Numbers of graduates before 1966 included those of junior colleges and postgraduate institutions.
2. All figures included students of day and evening sessions.
3. S&T = Science and technology.

**Sources:**

*Zhōnghuá mínguó jiàoyù tǒngjì* (Educational Statistics of the Republic of China) (Taipei: Ministry of Education), various years.

## APPENDIX 6.7

Cooperation between tertiary institutes administered by the Ministry of Education, research institutes supervised other ministries, and other enterprises in the ROC in 1973.

Field	Emphases	Institutes		
		Administered by the Ministry of Education	Supervised by other ministries	Under state or private organizations
Biochemistry	Institute of Biochemistry for biological, agricultural and medical studies.	National Taiwan University	Academia Sinica	
Geology	Geographical surveys	Institute of Geology of the National Taiwan University; Department of Geological Science of the National Cheng Kung University; College of Science of the National Central University	Institute of Geological Survey; Central Weather Bureau; Meteorological Agency of the Chinese Air Force	Chinese Petroleum Corporation
Agriculture	Culture of pest-and-disease-resistant; drought-resistant; chilling-resistant; early maturing varieties of major crops; cultivation and utilization of forestry resources; exploration of fishing resources and culture of marine products; hog breeding experiments; a study of animal diseases native to Taiwan; irrigation of sandy hills, water requirements for paddy rice irrigation and testing and extensions of farming machines.	College of Agriculture of the National Taiwan University; National Chung Hsing University		Taiwan Sugar Corporation
Oceanography	Marine biology, marine geology and geophysical oceanography; and physical oceanography	Institute of Oceanography of the National Taiwan University		

Field	Emphases	Institutes		
		Administered by the Ministry of Education	Supervised by other ministries	Under state or private organizations
Industry and mining	Energy resources; minerals; iron and steel; metals and machinery; petrochemicals and high molecular weight chemicals; electricity; textiles; food processing		Union Industrial Research Institute; Mining Research Institute; Metal Industry Research Institute of the Ministry of Economic Affairs	Laboratories of various public and private industries; several independent research organization
Communications	Application of telecommunications science; highway construction planning; railroading; harbour engineering; and meteorological problems.		Telecommunications Research Institutes	Taiwan Provincial Highway Bureau; Taiwan Railway Administration; Keelung and Kaohsiung Harbour Bureaus
Medical sciences and public health	Drugs fighting cancerous growths; diseases t which the Chinese race is particularly susceptible; reproduction and population problems; nutrition of the people; basic medical science (immunization and anatomy); and cure for bites from venomous snakes.	College of Medicine of the National Taiwan University	National Defense Medical College	
Electronics	Manufacture of integrated circuits and semiconductor materials; computers; electronic telecommunication switching system; and computerization of material in the Chinese language.			
Seismology	research of earthquake engineering			
Ship model testing	Shipbuilding technology	College of Engineering of the National Taiwan University	Shipbuilding Institute	

**Source:** Administrative Research and Evaluation Commission, *A Review of Public Administration, the Republic of China, 1973* (Taipei: Executive Yuan, 1973), pp.20-24.

## APPENDIX 6.8

New Courses of Science and Technology Established in the  
Higher Education in the ROC between 1982 and 1988.

Field of Study	New Course	Higher Education Institution	First Graduates			
			N	P	Year	No./Qual.
Natural Science	Meteorology	University of Chinese Culture		P	1983	30 B
	Environmental Science	Fengchia University		P	1983	24 B
	Research Centre of Water Resources & Environment Control	Tanchiang University		P	1985	4 M
	Life science	Tsinghua University	N		1985	6 M
Mathematics & Computer Science	Information science	Chiao Tung University	N		1983	40 B
	Information Management	Fujen University		P	1984	50 B
	Information & Electronic Engineering	Central University	N		1985	24 M
Medical Science	Research Centre of Biochemistry	Yang Ming Medical College	N		1983	4 M
	Medical Technology	Kaoshiung Medical College		P	1984	37 B
	Research Centre of Drugs and Chemistry	China Medical College		P	1984	5 M
	Research Centre of Medical Management	China Medical College		P	1985	9 M
	Post-Bachelor of Medicine	Taiwan University Yang Ming Medical College Kaoshiung Medical College	N N	P	1987	158 B
Craft & Industry	Research Centre of Paper Printing	University of Chinese Culture		P	1984	7 M
Engineering	Agricultural Mechanical Engineering	Chung Hsin University	N		1983	30 B
	Civil and Irrigation Engineering	Chungyuan University		P	1983	4 M
	Automobile Engineering	Taiwan University	N		1984	17 M
	Aerospace Engineering	Cheng Kung University	N		1984	28 M
	Research Centre of Applied Mechanics	Taiwan University	N		1985	19 M
	Research Centre of Engineering Technology	Taiwan Institute of Technology	N		1985	2 PhD
Architecture & Town Planning	Garden Design and View	University of Chinese Culture		P	1984	45 B
	Landscape Architecture	Tungshai University		P	1985	36 B
	Interior Design	Chungyuan University		P	1988	42 M
Agriculture, Forestry & Fishery	Aquatic Products Science	Taiwan Ocean University	N		1982	76 B; 9 M
Home Economics	Nutrition	Chungshan Medical College		P	1984	30 B
Transportation & Communications	Ocean Transportation	Taiwan Ocean University	N		1988	34 B

Notes: N = National; P = Private; No. = Number; Qual. = Qualification; B = Bachelor; M = Master; PhD = Doctor of Philosophy.

Source: *Zhōnghuámínguó Gōngsīlì Dàzhuān Yuànxìào Bìyè Rénsù Tǒngjì (71-77 Xuéniándù)* (Statistics of Graduates of Public and Private Tertiary Institutions of Republic of China, 1982 - 1988) (Taipei: Statistics Department, Ministry of Education, 1990), pp.93-136.



## APPENDIX 6.9

Number of Students Sent by the PRC to Receive Advanced Studies Abroad  
Between 1950 and 1983 by Host Countries.

Country	1950-1960		1961-1965		1972-1983	
	No.	%	No.	%	No.	%
Total	9,298	100.0	1,374	100.0	13,889	100.0
Former Soviet Union	8,208	88.3	206	15.0	10	0.1
Former East Germany	261	2.8	39	2.8		
Former Czechoslovakia	223	2.4	32	2.3		
Poland	149	1.6	45	3.3	1	0.0
Hungary	84	0.9	9	0.7		
Romania	68	0.7	55	4.0	113	0.8
Bulgaria	58	0.6	32	2.3		
Cuba			158	11.5		
United States					4,457	32.1
Former West Germany					1,482	10.7
United Kingdom			1	0.1	1,232	8.9
France					1,121	8.1
Canada					977	7.0
Australia					232	1.7
Sweden	7	0.1			215	1.5
Belgium	1	0.0			186	1.3
Switzerland	15	0.2	9	0.7	175	1.3
Japan					2,014	14.5
Other countries	224	2.4	788	57.3	1,674	12.0

Source: Department of Planning of the Ministry of Education, *Achievement of Education in China: Statistics, 1949 - 1983* (Beijing: People's Education Press, 1984), pp.126-127.

## APPENDIX 6.10

Distribution of ROC Students Receiving Science and Technology Training Abroad between 1952 and 1989.

Field of Study	1952-1961		1962-1970		1971-1980		1981-1989	
	No.	%	No.	%	No.	%	No.	%
Total	558	100.0	21,683	100.0	35,242	100.0	53,004	100.0
Natural Sciences	47	8.4	3,758	17.3	6,852	19.4	4,170	7.9
Engineering	177	31.7	5,536	25.5	8,458	24.0	15,507	29.3
Medical Science	22	3.9	799	3.7	1,624	4.6	2,188	4.1
Agriculture	60	10.8	2,545	11.7	2,516	7.1	2,054	3.9
Transport & Communication							599	1.1
Home Economics							438	0.8
Architecture							708	1.3
Mathematics & Computer							2,431	4.6
S&T Sub-total	306	54.8	12,638	58.2	19,450	55.1	28,095	53.0

Source: *Taiwan Statistical Data Book, 1991* (Taipei: Council for Economic Planning and Development, 1991), pp.290-291.

## APPENDIX 6.11

International Cooperation at the Level of Higher Education  
Between the ROC and the US, 1953-1958.

ROC INSTITUTE	FOREIGN COUNTERPART	TYPE OF EDUCATION
Provincial Taiwan Normal University	Pennsylvania State University (US)	Vocational Industrial Education (1953) and Home Economic Education (1956)
	UNESCO	Audio-visual Education (1955)
Provincial Cheng Kung University	Purdue University (US)	Engineering Education (1953)
National Taiwan University	University of California (US)	Agricultural Education (1955)
Provincial College of Agriculture	Michigan State University (US)	Agricultural Education (1955)

**Sources:** U. S. Mutual Security Mission to China, *Economic Progress of Free China, 1951-1958* (Westport, Connecticut: Greenwood, 1970), pp.58-62; Yánshēng Jīn, "Běnsǐhēng Zhī Gāoděng Jiàoyù" (Higher Education in the Republic of China), *Jiàoyù Fǔdǎo Yuèkān* (Educational Counselling Monthly), 1959, pp.33-34; and Milton A. Berger, *Investment in Taiwan (Formosa): Basic Information for United States Businessmen* (Washington, D.C.: U.S. Government Printing Office, 1959), p.34.

